SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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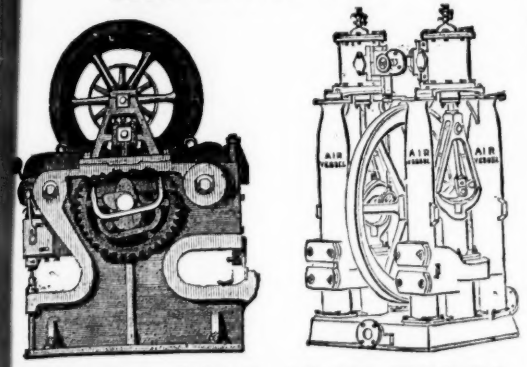

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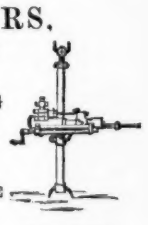

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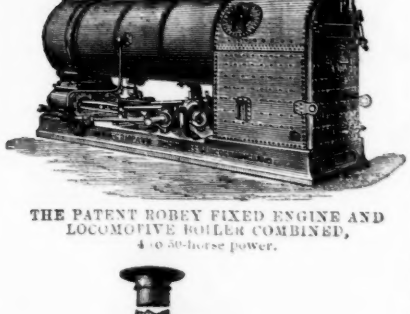

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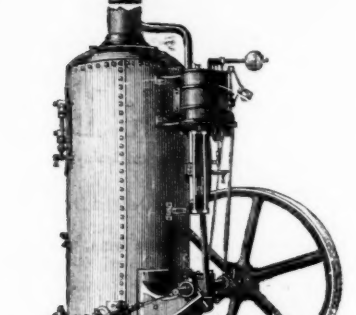

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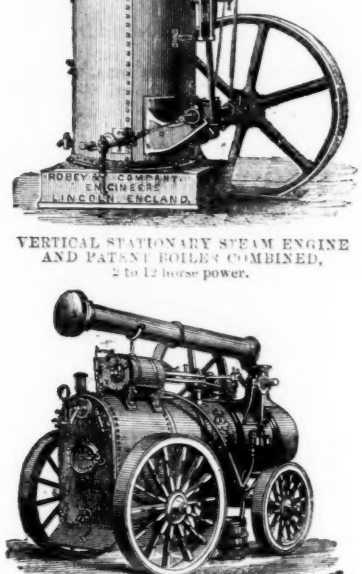

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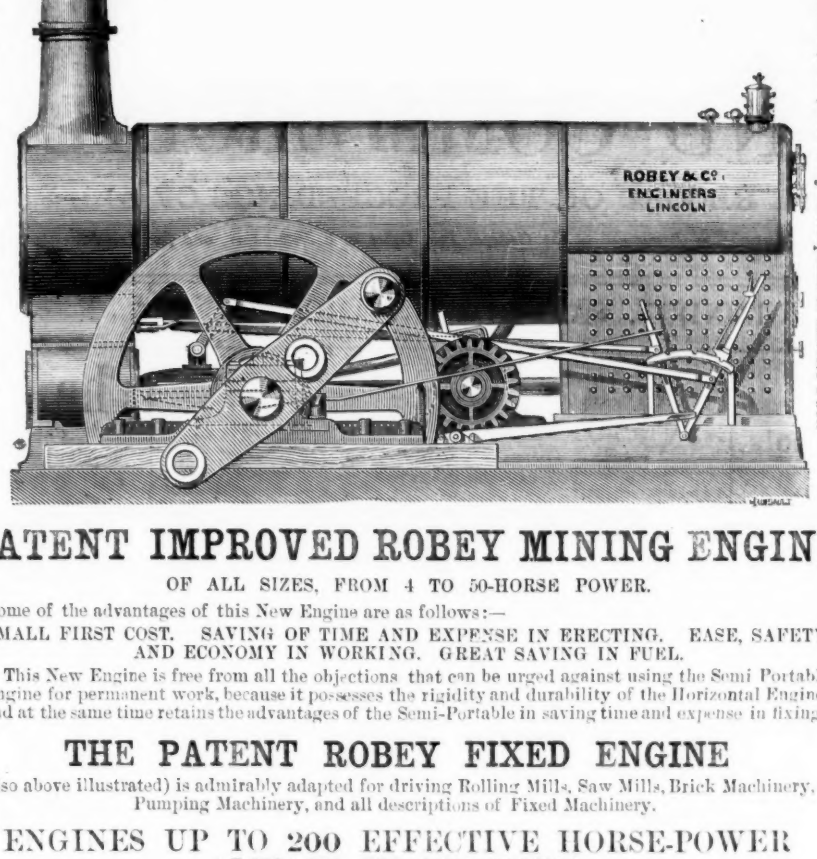

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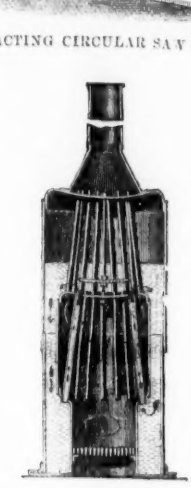

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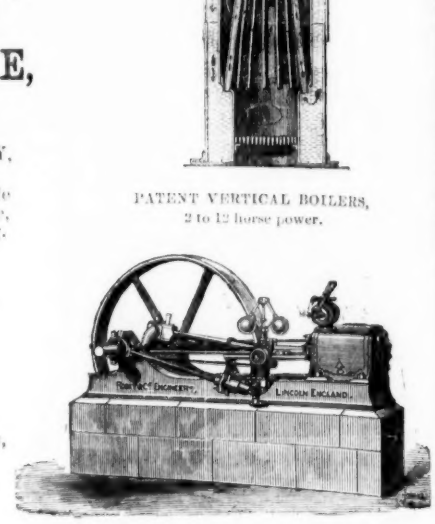

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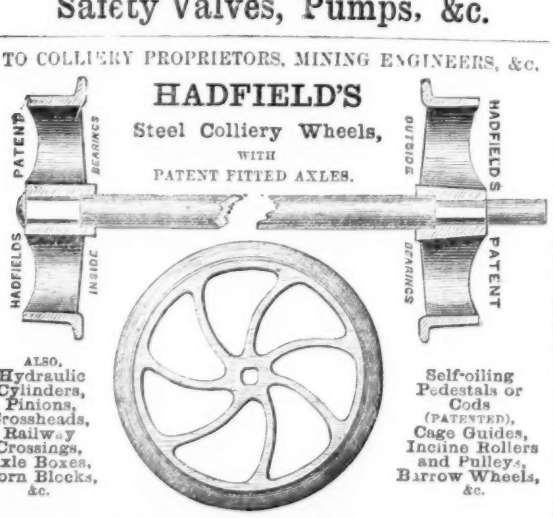

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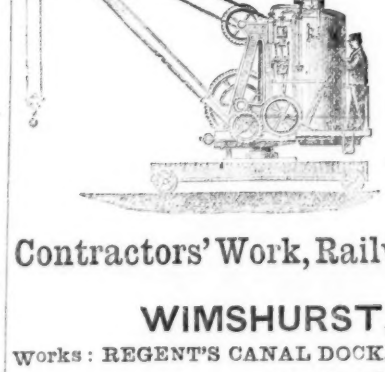

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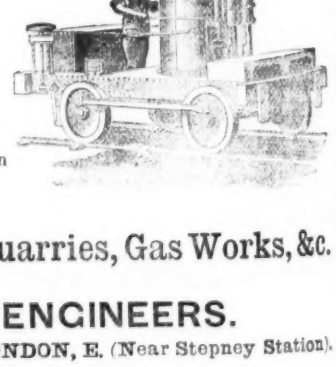

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COAL OWNERS, AND COAL MINERS.

The address of the Board of the Miners' National Union to the coal owners of Great Britain is a thoroughly careful and exhaustive document, and although the views expressed may not be in all cases free from error there is a very gratifying absence of those palpably exaggerated and untenable assertions which too often disfigure addresses of this kind. The inaccuracies occur only with regard to those statements concerning which the men cannot be supposed to have the means of ascertaining the truth. There is, for example, no ground for assuming that the coalowners netted 93,000,000*l.* beyond their ordinary trade profits during the three years ending 1874, although it may be quite true that many individual coalowners realised considerably more than the 5*s.* per ton increase. As a matter of fact it was the improving prospects of the coal trade in 1872 and 1873 that enabled many of the owners of collieries which could scarcely be wrought at a profit under the most favourable conditions to dispose of them, frequently at large premiums, to limited companies, and it was money subscribed by the shareholders in these companies that provided the funds for keeping up and increasing the wages paid to the colliers. Upon the assumption that the increased price of coal would continue indefinately the public were induced to undertake works of development of the most useless character, commercially considered, that could well be imagined, and by thus disturbing the position of the colliery labour market enabled the colliers to dictate almost their own rate of wages. And even with regard to the largely increased price paid by the consumer it is very questionable whether in many instances the increased profit did not go to the factor, or rather to the factors' clique which existed at the time, than to the coalowners. Large contracts were entered into to secure a constant weekly supply of coal for a given time—often an unreasonably long period—and the clique having by this means secured the control of the market run up prices at discretion, without permitting the coalowners to participate in the advantage.

But the market price being high the colliers were fully justified in demanding their share of the improvement, and they readily obtained it, because coalowners who had no contracts to fill were quite willing to give the amount of advance which others were willing to concede, their own profits being enormous, whilst those under contract were compelled to make a show of prosperity in the hope of disposing of their properties at a premium to limited companies. These are the facts which account for so many of the collieries transferred having large contracts on hand, some it is feared created to make a good average as to price. Be this as it may, it seems certain that few of the colliery companies were capable of profitable development, and that the financial position of the coalowners generally is not much better now than it was before the coal panic and period of exorbitant prices. The Miners' Union admit that more capital and more labour were brought into the collieries, and that notwithstanding the increased laziness and drunkenness of the miners there was a considerable increase in the output. What is required to be known in order to permit of any reliable conclusions being drawn is whether the output per man per annum was as many tons in 1874 as in 1872. An employer can quite as well afford to pay a workman 3*l.* per week as 1*l.* 10*s.*, provided the percentage returned upon the capital invested be the same, but practically the higher the wage the faster must be the work, whilst trades unions arrange that the higher the wage the less shall be the work done. A man requiring 10 per cent. per annum on 20,000*l.* invested must, the profit per ton being the same, turn the money, perhaps, twice in the year instead of once, if the wages be increased to secure that 10 per cent., and if the production be kept stationary whilst the wages rise this becomes impossible.

Taking the address of the Miners' Union, it appears that the miners' wages actually increased from 75 to 80 per cent. in the years of prosperity, but that immediately preceding the years of prosperity their wages were very low. The hewers advanced from 4*s.* per day to 7*s.* per day, and the ordinary run of day-wage men from 3*s.* 6*d.* to 6*s.* 6*d.*, and it is particularly noted that the men never led, but always followed, the advance. During the last two years and more the market has been a falling market. All things considered, the position of men and masters is bad. In the downward movement arbitration has been very frequently resorted to all over the country. And if we take one county, constituting the largest mining district in the kingdom, we shall see more clearly how arbitration has acted on prices and wages. In Durham four general arbitrations have taken place, in which some 50,000 workmen have been interested, and the decisions have been submitted to without hesitation or demur, and from the time when the first concession in wages was granted, the reduction in the price of coal per ton made by the owners to the consumers was 7*s.* 0·22*d.* per ton. In other words, the owners got by concession on the part of the men, and by awards in arbitration from umpires, 1*s.* 1*d.* per ton reduction in wages, and gave the public a fraction over 7*s.* per ton as reduction in price. This process of reduction, with certain unimportant differences, has been going on throughout the whole of the coal mining districts of England, Scotland, and Wales. It is going on now. In Durham and elsewhere at this moment there are notices served on the men by the employers for still further reductions, and it is urged that this continuation of demand and concession, leading as it does to deep poverty, is shaking the faith of the men in arbitration; whilst the condition of trade and the eagerness of the employers to obtain more than umpires may give them seems to be inclining them to resort to the old method of force.

The Miners' Union very truly says that if working men can maintain wages and secure generally favourable conditions of work by conciliation or arbitration as by striking or by submitting to be locked out it would be insanity on their part to strike or to challenge a lock-out. It is almost certain, however, that if arbitration does not make their position unbearable by forcing wages down to a minimum at which they cannot live, they will not reject it, but will seek by its aid to pursue their labour with the guarantees of peace arbitration gives, which includes also, to some extent, guarantees of justice. It is urged that the annihilation of the Union would not necessarily be a destruction of the fighting power of the men, and that some of the bitterest and most damaging struggles between employers and employed in England have been carried on by workmen not in a Union, beyond such Union as was improvised for the occasion. They think that the breaking up of the Union would merely create a series of local Unions still more prejudicial to the employers. In connection with the reduction of wages and of market price, the Miners' Union appears to confuse cause and effect to a degree which renders their arguments worthless. They doubt whether reductions of wages, unless under very exceptional circumstances, really afford any relief to the coalowners, and add that there is the further consideration whether, if such reductions do afford relief, how far they ought to be carried, seeing that the man who works must live, and if he is not to press on the poor rates it is fair to ask how much he should have, as a minimum wage, to keep life in his body whilst he pursues his work. Some light on more than one of these questions may be derived from noting the effect of arbitration in what has already been done. In following the Durham experience, it will be found that when the owners got from the men 10 per cent., or 3¼*d.* per ton, they almost immediately gave the public within a fraction of 2*s.* 7*d.* per ton in reduction of price. When they got from Russell Gurney 3*d.* and a fraction they gave the public rather over 1*s.* per ton; Mr. Forster's award, which gave them under 2*d.*, was followed by a concession to the public of within a fraction of 2*s.* 6*d.* per ton; whilst Mr. Hopwood's award was soon followed by a lowering of price to the extent of 1*s.* 3*d.* What further flinging away of price may have led to the present demand for a still further reduction in wages cannot at present be stated. All this would, no doubt, be plausible enough if it agreed with facts, but it is too well known that even the large reductions here mentioned as offered by the coalowners to consumers did not suffice to create a demand, and the question really became whether the men should be offered lower and lower wages, or whether the pits should be closed, and the owners follow many of their former rivals into the Bankruptcy Court. It is lamentable, no doubt, that workmen should be asked to work at unremunerative wages, but it is futile to expect that the consumer will in calculating what price the business he has in hand will permit him to pay for coal consider the wages paid to the collier, yet the Miners' Union asks—Should the public expect coal at a price which leaves the owner no profit, got by men for wages on which they cannot exist, except on the verge of want and misery? Hitherto, they say, it is clear that the reductions given by award have not relieved the employers; on the contrary, they have become worse with every concession made. Hitherto, also, these concessions have not stimulated trade. It was asserted constantly at these Durham arbitrations that the iron trade would be stimulated if coal was cheapened. It has been cheapened from 15*s.* 10*d.* per ton in the January of 1873 to 5*s.* 8¾*d.* in June, 1876, and where is the revival of the iron trade? There is, they are told, great loss to owners still going on. They know that misery is endured by the men and is sought to be increased; but, they ask, who in England or out of it has been benefited? It is not desirable that a natural competition should be prevented. But they insist that that competition is not natural which destroys profit on capital, and leaves the worker without sufficient bread. They think that the employers, in their own interest, ought to try and stop this headlong race to ruin, and if they cannot, so far as such a thing is possible, it ought to be done for them. Umpires cannot interfere with prices, but they might act so as to give the employers to understand that there is a point below which wages ought not to be lowered. And it may be said in the interests of the men, as well as in the interest of the general public, that that point has been already reached; nay, that in the interest of the employers themselves no further reduction in wages should be made, seeing that they have, as a rule, to give up to the public much more than they get from the men.

The Miners' Union urges that the proper policy in the coal trade just now would be to reduce the output, yet they say it is true that to limit the production in a mine is to greatly enhance the cost, so that by keeping the market glutted with coal, got at a greatly increased expense by partial work over a large surface, is to burn the candle at both ends, injuriously for all concerned. The reverse of the Union view appears to be the correct one, for if loss must be incurred either by limiting the production or by so glutting the market as to send down prices, it is obviously preferable to choose the latter alternative, since by giving other branches of industry the benefit of cheap coal the lessened cost of production of articles necessary to the miner, as to other classes of the community, indirectly tend to his advantage. The Union contends that a continuance of the present state of things cannot but have a most ruinous effect in lowering the value of mining property. It has been stated that the depreciation in mining property since the present bad times set in is no less than 100 millions sterling. But if we suppose half that sum as nearer truth, is it not, we ask, a most lamentable proof of the blind recklessness with which our coalowners have carried on their business? And, reckless as working men are said to be in pushing their claims by means of their Unions, we imagine that, in all their strikes put together, the losses attending them could not possibly make up such a frightful aggregate as this. Cases might be pointed out at the present moment of mines bought three years ago for 60,000*l.* and 70,000*l.* that might be had now for 10,000*l.* or 12,000*l.*, and even less. Certainly an enormous proportion of the value of mining property has disappeared, and the longer the present state of things continues the more serious will this depreciation become. Such is the miners' statement, and it is no doubt the true one; but the masters are as helpless as themselves to prevent the natural course which matters are taking; it is, therefore, useless that the Union asks the coalowners, not alone in the interest of workmen, but in the interest of all concerned, to scotch the wheel in our present down-hill progress by awards in arbitration, so that ruinous prices and ruinous wages may not become still more ruinous through awards that excite the consumers to make demands for lower prices which employers, pressed by pecuniary or trade necessities, cannot easily resist.

WASTE OF SMALL COAL—PATENT FUEL.—No. II.

SIR,—Those who are conversant with the analysis of coal are aware that the ratio of rapidity in the development of heat is proportional to the percentage of hydrogen and oxygen the coal contains. The following may be taken as a fair approximating table of percentages:—

Welsh anthracite, hydrogen under 3, oxygen under 1 per cent. respectively.
Welsh steam coal, hydrogen not less than 4, and oxygen 3 per cent.
Newcastle coal and the similar class of Welsh, hydrogen not less than 5, and oxygen 6 to 8 per cent.
Derbyshire, hydrogen 5 at least, and oxygen 8·50 to 12·50 per cent.
Lancashire coal varies, hydrogen not less than 5·50, and oxygen 7 to 19 per cent.
Scotch coals are similar.

This is not an accident, but the result of the known law of nature in the formation of coal, and a rational and scientific system of agglomeration must take these things into account in order to reconstruct the small so as to produce a fuel equal, if not superior, to the large coal from which it is derived, or containing latent calorific power as high if not higher than the original, or possessing quicker burning qualities. In short, the rational or scientific process of agglomeration must, without changing its character, its mechanical appliances, or its ordinary arrangements, except in varying the relative proportions of the ingredients used according to the qualities of the coal, adapt itself and the manipulation of the materials to the end in view. There is a process now in successful operation, patented by Mr. Hamel, which is calculated to accomplish all that has been contended for. This may readily be demonstrated.

Mr. Hamel's process effects a perfect agglomeration of small coal by the judicious combination of resin, pitch, hydrocarbon oil, china-clay, or silicate of alumina the proportions of which are regulated by simple rules applicable to the easily ascertained but generally known character, properties, and requirements of the coal. To some persons it may appear at first blush difficult to reconcile the use of this varied mixture of ingredients with the system of reasoning and science in agglomeration which the patentee contends for. It is, however, simple and capable of easy illustration, for which it is only necessary to answer two questions: 1. What is requisite to render small coal equal to large?—2. How does Mr. Hamel's patent supply the requirement?

As regards the first question, it may be observed that chemical analysis confirmed by practical results have established the facts that the latent heat of coal, which is the only available calorific power of any coal, is contained in its carbon, and this is dependent for its development, in the first instance, upon the quantity or percentage of hydrogen and oxygen the coal contains, and the rapidity of that development is proportionable to the percentage of these two metalloids. For example, anthracite, which contains no hydrogen or oxygen, or very little, ignites with difficulty, and burns so slowly that it is by itself under ordinary circumstances unfit for steam purposes. Starting from the following may be taken as a fairly approximate graduated table.

		Hydrogen.	Oxygen.
Steam	Nixon's Merthyr	4·12	2·53
	Duffryn	4·66	2·02
Newcastle.	Haswell Wallsend	6·68	8·17
	Original Hartley	5·56	8·03
Scotch	Kilmarnock Skerrington	5·82	11·31
	Dalkeith Coronation Seam	5·20	14·37

As already observed, coal by breakage loses the greater part of its hydrogen and oxygen. But for the loss of the facility these afford for developing heat this is not in itself to be deplored, because, at the same time, the dangerous gases are eliminated, and the small coal is thus rendered innocuous so far as relates to the liability to explosion. To make of the small coal a fuel equal, if not superior, to the original large it is necessary to replace what has been lost by breakage without re-introducing the deleterious and dangerous gases to which so many catastrophes at sea are attributable.

Now, as to the second question, the answer is to be found by reverting to the chemical composition of the ingredients embraced in Mr. Hamel's patent and the mode of applying them.

Resin is an oxhydro-carbon, and, therefore, contains oxygen, hydrogen, and carbon; hydrogen is still further supplied by the mineral oil. (I leave pitch out of the question, its use being merely to harden the fuel.) The proportions of hydrogen in a non-volatile state and oxygen in combination with part of it are to the coal about 4 to 5 per cent. of the former, and 4 per cent. of the latter.

Mr. Hamel having so regulated the proportions of his ingredients as to give back to the small coal the beneficial quantities it had lost rightly conceived that in all probability these ingredients, being capable of such rapid combustion, might not endure sufficiently long in the fire to secure the perfect combustion of the coal dust. To prevent this he availed himself of an absorbent which would accomplish the object in view with the addition of the least possible quantity of ash. For this purpose he adopted china-clay, than which when divested of its moisture no better absorbent exists. It is a well-known fact that balls made with china-clay and paraffin will burn freely, and stand well in the fire. No better proof of its value as an adjunct to inflammable fuel can be required; but the most curious and valuable result obtained from this addition is that it renders the fuel smokeless. The best evidence of this is furnished by the Metropolitan Patent Fuel Company, at Briton Ferry, whose fuel, made by Mr. Hamel's patent, is smokeless 95 minutes out of every 100.

Mr. Hamel, being aware that if pitch is not, as generally is the case, sufficiently distilled it retains a portion of its oleaginous constituents, rendering the fuel into the composition of which it enters liable to spontaneous ignition from the evolution and oxydation of such matter when stowed where the temperature is somewhat elevated, has taken particular care to guard against such consequences by heating his mixture to such a degree as effectually to expel the dangerous elements. This is the more important where fatty matters and oils are freely used with small coals.

We now come to the question of convenience of stowage and the adaptation of fuel to the demands of the foreign market.

That fuel is generally well adapted to the continental trade is evidenced by the fact that foreign railways, steamships, and other companies consuming coal or fuel, even national institutions, such, for instance, as the French Administration des Tabacs, prefer fuel to ordinary coals.

Fuel if well made gives very little dust, and when the average weight of the blocks is known the rate of consumption is easily ascertained by counting. This advantage is availed of by the French, Italian, and Spanish Railway Companies to guard against reckless expenditure of fuel. The practice is to allow so much fuel per mile, and if the stoker uses more than the prescribed allowance he is required to pay one-half of the value of the extra quantity consumed, but if he burns less he is allowed one-half of the value of the quantity saved. The regular size of the blocks enables the company's inspectors to check the consumption.

The quantity of dust from properly made fuel in transit is much less than that from any natural coal. Coal of any description begins to deteriorate as soon as it is exposed to ordinary atmospheric temperature, and the hotter the climate the quicker the effect. They are oxydised by the oxygen of the air, and this expenditure of calorific power amounts in some descriptions of coal to 15 per cent. per month. By the due adaptation of the ingredients employed under Mr. Hamel's patent, fuel may be made to stand the hottest climate, a result heretofore much desired on account of the tendency of pitch and tar made fuel to melt and run together under the influence of hot climates. Returning, however, to the question of ordinary atmospheric deterioration, considering the large stock of fuel that great companies must always have on hand, it is not difficult to understand that they should be seriously alive to the losses alluded to, and that they should, therefore, prefer fuel to coal, such deterioration by oxydation being, with well compressed fuel, impossible.

Oxydation cannot take place without absorption of oxygen, and porosity must exist to render absorption possible; and well pressed fuel is not porous, so that it can remain exposed for months without injury. Concentration of power has great weight with foreign purchasers, hence they prefer fuel, because being thoroughly compressed it occupies less space than natural coal, and can be conveniently piled to any height. When space is scarce and rent high this is an important consideration, and by the adoption of fuel large sums are saved in rent.

A. VASSARD.

Old Vicarage House, Greenwich.

THE NEW COAL AND IRONSTONE IN THE DISTRICT OF COALVILLE, LEICESTERSHIRE.

SIR,—The main coal in this district was first worked in the year 1827, and since that time it has been the principal seam worked throughout the coal field, the coal always finding a ready market in the town of Leicester and the South of England. The coal field is bounded on the east by the granite forming the Charnwood Forest hills, which rise to a height of nearly 900 ft. above the sea level; on the north by the mountain limestone; on the south-west it bassets at a distance of about seven miles; and on the south is again brought to the surface by a ridge of granite rocks rising 200 ft. above the surrounding district. The new deep pits which have been sunk in the neighbourhood have proved six seams, making a total of 35 ft. 9 in. of workable coal below the main coal. Two of these seams are very valuable, the upper seam being a fine soft coal 7 ft. in thickness, and the lower seam a good hard furnace coal 6 ft. in thickness, with a parting between the two coals of about 40 in. of fire-clay. On the top coal lies a very superior quality of ironstone 3 ft. in thickness, yielding 1 ton to the yard; this valuable ore is destined eventually to play an important part in the prosperity of the county. The whole of the iron-stone which can now be mined in the district can be sold at the pit at 12*s.* 6*l.* per ton, or 15*s.* per ton calcined, and can be delivered on the bank at an extremely low cost compared with some districts, where it is nothing uncommon for ironstone from the coal measures to cost 10*s.* per ton getting. Coalville can now boast of two competing railways, and a third company will shortly commence a new route, which will open out a communication with the whole of the eastern counties, and when it is taken into consideration that this district is within 20 miles of the large deposits of oolitic iron ore, it will at once show its important position when the lower coals and ironstone (which are now in their maiden state) come to be developed. It is well known that in many iron making centres not only the coal but also the ironstone has to be imported, therefore this district cannot fail to command attention. The fire-clay and red brick clays are also very superior, and the encaustic and other tiles made in the locality are renowned for their excellent quality and workmanship. Since the seven new pits have been put down in the district to the deep coal a very large quantity of coal has been sold off in building lots, and some hundreds of dwelling houses, together with a large ironfoundry and engineering works, have been erected, and large additions have been made to the existing brickworks and factories. Other large works are projected, and the neighbourhood will grow largely as a natural consequence. In the year 1824 Coalville contained only two houses, so that it is evidently owing to its great mineral wealth for its present and future growth and prosperity.

JONATHAN HARRISON, F.G.S.

SLIME DRESSING.

SIR,—Your correspondent, "Gluck Auf," has not caught my meaning, and, perhaps, I might not have been sufficiently clear in expressing what I intended to do with the slimes, after coming from the stamps and crushing mills, in my former letter. The central space of 60 ft. diameter is not meant to act as a round buddle in motion, but merely a place for the settlement of the slimes, instead of flowing and settling into slime pits as they now exist. The slimes from this should be washed in round buddles of the present size when raised, as it would be more convenient to do so for very many reasons. I have tried this process in a small diameter, and the settlement and separation from their ores and waste, by the specific

gravity of each, is all that can be desired, and I think if "Gluck Auf," or any other party connected with mining, were to try two of such spaces as I have before mentioned—60 ft. diameter—giving it the fall mentioned in my former letter from centre to the outside or rim, and keeping the bottom and sides boarded as in the present round buddles, they would act better than any quantity of slime pits that could be made.—*Goginan, March* 20. ABSALOM FRANCIS.

AUSTRALIAN GOLD COMPANIES, AND MR. DICKER.

SIR,—In 1872-74 a Gazette was edited by Mr. Dicker, of the Royal Exchange, in which certain Australian mines were dilated upon, in some of which I unfortunately was tempted to invest—Golden Crown, Imperial Crown, Mariner's Reef, Sir John Moore, and the Australian Mines Investment Company's shares. Now, the point to which I would wish to draw attention is, seeing that the mines enumerated have been most grossly misrepresented, whether the parties concerned are not liable to be prosecuted. No shareholders' meetings are called, and no information given. Had I not have seen Mr. Dicker's Gazette I certainly should never have embarked in those concerns, and certainly think that, in justice to your subscribers, you ought to insist upon Mr. Dicker furnishing a full account of his schemes in the *Mining Journal* for general information. I cannot afford to lose my money, and Mr. Dicker ought in common fairness, to call the shareholders together, that those who have invested in his schemes should know as to the probability of having some return. If anyone will refer to the Gazette published by Mr. Dicker, and note the extraordinary assertions made as to the richness of the Thames gold field schemes, through his instrumentality, Mariner's Reef, Sir John Moore, and the Australian Mines Investment Company, they will see how victimised those who invested were, and how they now stand. When the public see such publications they feel to the bitterest that having invested through such a medium it is only right that a searching investigation should take place as will thwart any more operations of such a character, and I do hope the subscribers to all these ventures will endeavour to get their money—if necessary, by prosecuting the parties concerned, and exposing what seems inconsistent with common honesty. Sir John Moore Mine I will write about in a future letter, as to how the affair was recommended by Mr. Dicker, the plausible story as to delivery of scrip, the marvellous yield of gold, &c.

March 21. SHAREHOLDER.

RICHMOND MINING COMPANY.

SIR,—I am afraid "A Shareholder" is not, like Mr. Gladstone, "a master of language," or he would not have used the term "filthy missiles," and I entreat him to point out anything in my letters which in any way approaches filthy that I may instantly withdraw it with an ample apology. I endorse his opinion of respect for the Chairman, who is the only director with whom I have had the slightest intercourse, and of whom I should be sorry to say anything to give pain, as I consider him not only an able but an amiable and gentlemanly man, but this does not render either him or the other directors infallible in their management. To prove that I have had ample cause to complain of errors of management I will here state one or two facts. At the time Mr. Meyer refused to make further advances to the company, and before it became known to the shareholders and public, a person who knew of this circumstance, in whom I had confidence, told me that the directors had determined to pay a dividend of 10 per cent., and that the money was in hand for the purpose. After waiting some time for the announcement of this dividend—the shares meanwhile declining—upon enquiry he told me that the delay in declaring it arose from the inability to form a quorum, some of the directors being away from town—one of them, Mr. Brown, in Germany. Of course, this statement respecting the dividend turned out to be entirely untrue, and the consequence was that I and some other persons were considerable losers, one of them, unfortunately a lady, losing 240*l.*

The same person, also about the same time, assured me that the patent right of the Rozan process for America was the property of the Richmond Company, and that the profits of that alone would yield a handsome dividend. Now, if the directors had, which I contend was their duty, and of which even "A Shareholder" complains in pretty plain terms, kept the shareholders duly informed of the varying circumstances of the mine this person would have been unable to have deluded us too trusting ones.

"A Shareholder" entirely misrepresents me in intimating that I propose an American manager of the mine, indeed it is the last thing I should think of. What I proposed was the appointment of a competent and trustworthy managing director at the mine, such as we have in Mr. Probert, but who is only there provisionally.

March 22. COMMON SENSE.

THE POSITION OF CORNISH MINES.

SIR,—Carefully collected information on the position and prospects of tin and copper mines may be useful to your readers. The latter may be almost confined to Mellanear, West Tolgus, East Pool, and West Seton, which yield more copper ore than all the copper mines west of Truro. I was glad to hear of a great improvement in one of the western levels of West Seton yielding 8 tons of copper per fathom. A heavy call was made on the shareholders recently to put this mine into a healthy financial condition; now that the mine has also improved there should be no question about dividends. The largest shareholder has recently called in a trustworthy and able manager to report on the capabilities of the mine. He, the said inspector reports that the mine should be making handsome dividends. This, we understand, has been called in question by the powers in possession. Consequently, a second party has been called upon to report, and he more than confirms the first. What, then, is the duty of the shareholders but to effect a change in the management if the present agents cannot give the shareholders some consideration for their money? The present crisis is one that will quickly terminate in death if everyone does not exert himself to the utmost.

We are not living in 1872 or 1873, when the mania clutched upon a successful man who was begged and beseeched to lend his name to struggling, and in some cases excellent, mines. How far the latter have suffered from the want of that necessary supervision, and how far the appointment of a dummy manager, to take the pay and honour of worthier men, is a question worthy of an essay being read before the Miners' Association. In the writer's opinion it is in no small measure the cause of the present deplorable condition of Cornish mining from the absence of that stimulus which prompts all improvements in other industries. Drones must be weeded out, and men of energy and talent liberated from useless shackles, that they may show what can be done, that they may rise as their merits are developed. Can any man as manager to half-a-dozen mines be worth his salary?

Mellanear.—This ill-used mine of two failures through limited liability is evidently now in the hands of proper management, and with abundant power is likely to take the lead in English copper mines. In addition to the great length of copper ore discovered in the 78 fm. level, as well as at the 86, other large lodes are being cut, which it is hoped will be highly profitable, and justify the perseverance of the resuscitated company. West Tolgus continues the richest mine in the district; with a better price for copper would have stood high in the list of Cornish prizes.

Of TIN MINES.—Few are looking otherwise than well, promising permanent returns, lasting for generations so far as quantity and quality are required. Dolcoath, one of the oldest and, perhaps, richest of tin mines, shows increased productiveness at its deepest points. It is to be deplored that no better facilities exist for drawing the tin-tuff, for nearly ½ mile in depth, than over a bed-plank up an incline shaft—incredible in these days of supposed progress, the richest tin mine in England is without skip or cage to draw the stuff. It would be an interesting paper that would show the cost in bed-plank, kibbles worn out per annum, loss of steam power, loss of time, &c., this system has entailed. Many dividends have been wasted. What is the cure? Prepare the skip-road, send it down in sections ready for putting in, and when all is ready go at it with spirit, and do it in a month, forego a dividend for one quarter if you cannot do it without, but there are other shafts whence stuff can be derived besides the main shaft.

South Condurrow is doing exceedingly well, and will probably pay a dividend of 10s. for the four months. An exceedingly rich lode in the western part of the mine has greatly increased the returns; were it not that Wheal Grenville possesses the right to pursue this lode in depth at even a shallower depth than the present 90 going west the shares might be expected to go to a very high price, as the best paying dividend tin mine in Cornwall. While Dolcoath pays 7*s.* 6*d.* per share, shares sell at 34*l.* or 35*l.*; Tincrofts sell at 19*l.*, pay 5*s.* per quarter. South Condurrow will earn 10*s.*, and has no back debt, yet shares are about 7¼.

East Pool must take the third place as a mine whose dividends are honestly earned, and whose cost is charged up as closely as possible.

Of Carn Brea, Tincroft, West Frances, and a few others, there is an awful skeleton in the closet if the tide continues still to recede. Dividends should never be paid until all known liabilities are discharged. Who has the courage to propose this now? May the turn of better times soon come, and the lesson of adversity taken home—balance your books before you pay away other people's money in dividends. X. Z.

THE MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

SIR,—I agree with your Cornish Correspondent in regretting that the claims of Mr. Readwin and Mr. Collins should have been pitted against each other. It is of little consequence to the scientific world which of these hard working gentlemen is the actual founder of the Society so long as it has been successfully established. Whichever may be considered the founder, it was very clear to me from the outset of a long series of articles in the *Mining Journal* and Chemical News, signed "T. A. R.," what the writer's drift was. These interesting and exhaustive communications convinced and convicted me, and on reference to the letter of Mr. Collins in the Chemical News of July, 1875, and referred to by your correspondent, I find that Mr. Collins's conviction occurred in the same way—at least, he says so, and his letter is to that effect. F. BENNETT.

New Broad-street, March 21.

MINING IN IRELAND.

SIR,—May I trespass so far as to inform your readers of the present depressed state of mining in this part of Ireland. A few years since several sets were in good working and paying condition, but for some time past not a single one of these has been in existence. Is it not really strange to see that where capital can be safely invested with remunerative profits no enterprising spirit will speculate. From my own practical experience as manager in some of those works I have acquired a good knowledge of the stratification here, and could safely recommend a few to the capitalist. Besides those which were then only partially worked several bunches of silver-lead, blende, and copper have since been accidentally discovered by country people in tilling their fields, &c., immediately cropping up to surface, which were brought under my notice, but from want of mining spirit in our Irish capitalists nothing in the way of trial has been attempted, though in localities affording the greatest facility.—*Milltown Tulla, Co. Clare, March* 16. P. F.

WEST CORK MINES, IRELAND.

SIR,—I was recently requested to examine an extensive mineral property in the south-west of this county, and found in it a lode of mundic about 6 ft. wide, nearly solid, running north and south. This lode intersects an east and west copper lode, and I have observed from long experience in the mines in this country that it is almost invariably the case where east and west lodes are intersected by mineralised cross lodes, large and valuable deposits of metallic minerals are found at or very near the points of intersection. By extending the adit level some 6 or 8 fms. west another mineralised north and south, or cross, lode would be intersected. Those two important points may be proved at a trifling expense, and without the aid of machinery I believe valuable discoveries will be made. Deposits of the sulphate of baryta of good quality are found in the same property. Every facility exists for shipping produce, there being good roads, quays, &c. W. THOMAS.

Cappagh Mine, Ballydehob, County Cork, March 17.

CAPTAIN TREGAY, AND PEDN-AN-DREA MINES.

SIR,—There are several typographical errors in my letter which appeared in last week's Journal, which I would like to correct. At the beginning of the second paragraph, instead of "Captain Tregay gives me an extract," it should be, as written by me, "Capt. Tregay gives an extract;" and in the same paragraph the word "clearing" should be "changing;" and at the end of the last paragraph "his letter" should be "this letter." W. X.

CAPT. TREGAY, AND PEDN-AN-DREA MINES.

SIR,—Your extraordinary correspondent, "W. X.," has rather misapplied the hackneyed phrase, "No case, abuse opponent." When under cover of an anonymous letter a person makes base insinuations it clearly proves that he has no case.

I will now apply myself to his questions—No. 1. "W. X." can scarcely be so foolish as not to be aware that mines do sometimes improve. The improvements in these mines have made all the difference.—Question No. 2. "W. X." is clearly not interested in the present company, and must, therefore, wait their pleasure to issue a public statement.—Question No. 3. Let "W. X." apply to the secretary of the late company, who, if he was a shareholder, and has paid his calls, will, no doubt, give him every information. If "W. X." was not a shareholder, and will write to me, I will very readily tell him all about it. Now for the one fact put forth by "W. X." The amount called up last year had to meet the loss of a much longer period than "W. X." has stated; so much for his one fact. Now, in obedience to "W. X.," I will stick to the point. An honourable opponent, however distasteful his opposition may be, I always meet fairly, or even if a man makes false charges, and signs them in his own proper name, I can treat him with that respect due to courage. One need not object much to anonymous correspondence when fairly conducted, and confined to fair criticism. But a man who under cover of an anonymous letter is mean enough to issue base insinuations I call that man a coward. Let "W. X.," whoever he may be, bring any charge, or fancied charge, against me and I will meet him fairly, but a mere calumniator who is afraid of his own statements is not at all worthy of my metal, and if he expects by such a course to induce me to satisfy his morbid curiosity he reckons wrongly. W. TREGAY.

Redruth, March 21.

NEW CONSOLS, AND WHEAL ARTHUR.

SIR,—Under ordinary circumstances, where a mine has had a trial and the company decides to wind up, no special remarks need be made, everyone with any real knowledge of mining being aware that with the exercise of the best judgment in the world success cannot at any time be relied upon as a certainty. In the case of the above-named adventures, however, from the prominent position they have taken, their failure cannot fail to be the subject of general observation. New Consols for many years was well known by the name of Wheal Martha, the lode, as a miner in common parlance would describe it, being a great rank orey lode containing mundic, with some copper and tin ores interspersed throughout. It was worked for years as a copper mine, but was found too coarse to pay, when all at once sensational reports sprung up that here and at Wheal Arthur the former adventurers and their agents had left enormous quantities of tin behind in utter ignorance of its existence. A long public correspondence ensued as to who should be entitled to the honour of these great discoveries, the distinction ultimately falling on Capt. Wm. Skewis, of Tavistock, and Capt. Richd. Pryor, from the West of Cornwall. Wheal Arthur ceased working some while ago, and a similar fate now almost seems to await New Consols. The Wheal Arthur accounts do not appear to have had any very extensive circulation, but from the statement produced at the late meeting of New Consols there are debts owing to the extent of something like 60,000*l.* to debenture holders, merchants, and men. This result is so seriously out of accord with the constant official glowing reports of actual discoveries of copper, tin, silver, and arsenical mundic (to be extracted by a process which was to revolutionise mining, and to set all Cornwall alive), that some explanation will, doubtless, be forthcoming to account for so disastrous a collapse. The new scientific schemes on trial—a trial of years—at New Consols, and in the immediate neighbourhood, for the treatment of low-class ores, after an enormous expenditure of capital, cannot, it is to be feared, be looked upon as much of a success. However, we shall be glad to have some information on these matters from the parties concerned. A LOOKER-ON.

March 20.

LLANRWST LEAD MINE.

SIR,—In your report of the third ordinary general meeting of shareholders, held at the company's offices, Gracechurch-street, on Friday, the 16th inst., an error or two requiring correction occurs, in one of which I am made to say "that by emptying the engine-shaft, and opening it up, an output of 100 tons per month could be made." It should have been, "by sinking the engine-shaft, and opening up the mine, 100 tons per month could be raised." In the second instance the Chairman is reported as having said "all the purchase-money, with the exception of 4000*l.*, had been taken in shares." What he said was "all the purchase-money, with the exception of 2000*l.*, had been taken in shares." In another instance I am made to say, when speaking with respect to the continued improvement of the mine, that "the higher we drove the better it became." It is almost unnecessary to add that "farther," and not "higher," was the word I employed in that connection.

March 21. ROBT. KNAPP.

THE WEST COMBMARTIN SILVER-LEAD MINES.

SIR,—The arguments set forth from time to time in several of our commercial journals that the diminished rage for foreign investments must, sooner or later, command for legitimate home speculations a greater and more serious attention, seems very likely to prove correct, for we cannot fail to recognise in the numerous enquiries after shares in several home ventures indications of a more hopeful and healthy state of things than has existed for a considerable time. British lead mines especially seem to be (and deservedly so, we think) in great favour, and foremost among them just now (if we may judge from the enquiries and brokers' advertisements in the Journal) are the Combmartin Mines; nor is this, we think, surprising, for although this rich mineral district has for nearly thirty years (in consequence of landed difficulties now, happily, removed) laid comparatively idle, it has a pedigree, in a series of successful mining operations, which but very few, if any, of the most productive silver-lead mines in Great Britain can boast. The West Combmartin is about a quarter of a mile from the boundary of the celebrated Combmartin Mine, and has the advantage of being virgin ground, with several of the richest Old Combmartin lodes traversing the whole sett, whilst the adit levels now being driven in from the cliffs will unwater the mine to a depth of from 20 to 30 fathoms, and give backs of stoping ground to the same depth. There is evidently a great amount of interest being taken in the district, as is shown in the fact that the whole of the shares in both Combmartin and West Combmartin were readily subscribed for, and quickly went to a premium, the prospects of success being such as to justify the desire to possess shares. We also hear that a well-known Welsh Company have taken up a sett east of this property, and we shall be only too pleased to hear of the realisation of the adventurers hopes, and the general prosperity of both the Combmartin and West Combmartin Mines.

MINER.

CARDIGANSHIRE MINES, A.D. 1877—No. VIII.

SIR,—Beginning with LLYWERNOG MINE, as promised, I may say that the mine has changed possession within the last three years, and the machinery, which was in a very bad state, has been put into thorough repair. The principal work carried on underground is the extension of a level westward for the purpose of making a communication with the Powell Consolidated. This is a work that will take from 18 months to 2 years to accomplish, but which, when completed, will greatly facilitate the working and opening of both these properties, and it only wants more ground opened of the same character as that already worked away, and of which I am convinced there is plenty, from every indication and appearance, to make this a good and lastingly profitable mine.

We will next take the POWELL CONSOLS, adjoining the last mentioned property, and to the west of it. The returns being made, are paying the costs of the mine, and assisting to carry on the trial of making a communication with the adjoining mine, which, when finished, will enable them to increase their returns, and to give some good profits. It only wants the same method of working as pursued in the Van Mine—that is, the regular sinking of the engine-shaft—to make this a first-class dividend property. As I shall have to call attention to the mode that has hitherto been followed in carrying out the workings, or rather the extraction of the great courses of lead ore that have been discovered in the leading mines in this county as they occur in the list, I hope to throw some light as to the cause of the present depressed state of mining here, and to show with an equal amount of certainty that they are capable of not only doing more than they have ever yet done, but with improved machinery for dressing, winding, &c., to surpass even that.

At CLARA CONSOLS a slow plan of working has been the order of the day, and consequently no great results have accrued from it. There are many fine lodes in this grant forming junctions that cannot fail to produce very large bunches of ore when the ground is laid open, and if capital were brought to bear on it a little time only would be required to bring this into one of the greatest mines in the county.

WEST POWELL MINE is a piece of almost virgin ground standing between the Powell Consols and the late Cwm Brwyno Mine, now the East Goginan. The lode has been seen at surface carrying a fine gossan, quartz, and lead ore, and a small capital would give it a fair trial, which it is hoped it may soon have at the hands of some parties who would like to embark a sum of about 2000*l.*, which would be sufficient for the purpose.

I next take the Cwm Brwyno, or the now EAST GOGINAN, where a company is being formed to give it a new trial. This property has already made very large returns and some profits, and with proper management, a little time, and a moderate amount of capital, it is bound to become one of the best dividend paying mines on the list of these properties.

I shall in my next give a few remarks on the East Darren Mine.

Goginan, Aberystwith, March 20. ABSALOM FRANCIS.

PARYS MOUNTAIN MINING COMPANY.

SIR,—I observed a letter in last week's Journal from "Quid pro Quo" making an attack on the management of these mines, and also asking some questions, which, in my opinion, would have been unnecessary had he read the information given in your columns from time to time. As I thoroughly inspected the mines in the month of January last, and have no personal interest in the concern, I may, perhaps, be able to give an unbiassed reply to the letter in question.

I have no hesitation in saying that no management can be better, and the change suggested by your correspondent would be ruinous to the mines, because no man, however clever he may be, could immediately enter upon and direct the operations of the mines with the same efficiency that they are now being done. With regard to the 90 cross-cut, I deny that the progress is slow considering the hardness of the ground. The reason the lode has not been cut is, in my opinion, that it has changed its dip. Above the 40 fm. level it underlied very flat, and it was anticipated that it would continue the same bearing to the 90. Had it done so it would have been cut by this time; but, supposing that it made only 1 ft. in a fathom difference in the underlie, which would be no unusual thing for a lode to do, it would make from 8 to 10 fms. difference in the length of the cross-cut.

With regard to the second question, I could see no place where money was being spent in unprofitable ground; indeed, the 90 cross-cut was the only point in operation that was not self-supporting. Your correspondent does not seem to take into account the cost of

keeping such a mine at work; for, supposing that every point beside were stopped, the regular establishment expenses would be the same—and I see a good policy in working the points that will yield a little profit, so as to assist in paying current expenses.

JOHN ROBERTS,
Member of the Mineralogical Society of Great Britain and Ireland.

PARYS MOUNTAIN.

SIR,—In order fully to appreciate the proposal to divide the Parys Mountain sett, as shadowed forth in the Journal, I will, with your permission as a large shareholder in the company, call attention to its present position and prospects.

The grant in itself is of very large extent, far more than one company of moderate capital can command. At the western extremity of the sett, at Morfadu, there is an enormous white rock, precisely similar to that which covered the great open-cast before the five millions worth of ore was extracted from it, and it has always been the opinion of those in the neighbourhood that a large, if not a similar, deposit would be found under this white rock. Indeed, so strong is this feeling that if a company were formed to work it I believe that nearly all the shares would be taken up in Manchester and Liverpool.

Near this rock there is a large deposit of "blue stone," and a few years ago the directors erected an engine to work it, and raised a few hundred tons in a very short time; but the price obtained for it was not sufficiently remunerative, and raising of it was stopped. A moderate sample of this blue stone consists of 35 per cent. spelter and 15 per cent. lead, and there is now such a demand for it that, as you say, the company have had an offer for 3000 to 4000 tons a year, at a price that would leave a considerable profit. The agent considers that he could raise 2000 to 3000 tons a year, and could commence at 150 tons per month, after an outlay of 700*l.*, and sinking to another level.

I believe I may add that although vast quantities of this blue stone are to be obtained, it is the general opinion of all those practical agents who have seen the deposit that it is lying above some more valuable mineral, which will be developed by sinking through it.

The Parys Mountain Company at present have as much to do as they can well manage with their limited capital;—in driving the 90 cross-cut south to get under the great open-cast, in opening out the new copper ground at the 90 east, and in manufacturing precipitate and ochre; and if Morfadu and the blue stone are to be worked it must be by fresh capital; and I would suggest to the directors the following plan for raising it.

Sell the Morfadu to a separate and limited company in 13,500 shares of 1*l.* each. Allot 9000 shares (5*s.* on application, 5*s.* on allotment, and the rest in six or nine months). Of the 9000*l.* thus raised pay 4000*l.* to the Parys Company, and have 5000*l.* working capital to raise the blue stone and test the white rock. The 4500 shares remaining, with 1*l.* fully paid up, would also be paid to the Parys Company in this manner.

At present that company, of 22,500 shares, offer each holder at the rate of *two* Morfadu shares for every *five* he holds in Parys. This would absorb the 9000. Then for each two thus taken give as a bonus one of the fully paid up shares, which would exhaust the 4500. Practically this would amount to the new company paying 4000*l.* in cash and 4500*l.* in shares to the Parys Mountain shareholders on their finding the new company capital. Should any of the shareholders decline taking their *pro rata* interest the shares should be offered in Manchester, and to the general public.

If, as the agent states, he can raise 150 tons per month of the blue stone, this would at the price offered leave a profit equal to 12 or 15 per cent. on the whole capital of 13,500*l.*, without considering the grand speculation at the white rock.

This plan has not been mentioned to the directors, and may require modifications and alterations; it is simply put forth as an individual shareholder's opinion to test the feelings of others.

I would now remark upon the letter in the Journal signed "Quid pro Quo." Although the 90 cross-cut south to get under the open-cast is now the main object of the company, it was not so at the first; and even now that it is so, owing to the length of the cross-cut and the nature of the ground, greater progress cannot be made in it.

I have before me a printed statement of the directors, published in 1874, showing that the objects of the company at starting were—1. To get under the great open-cast, from which copper ores to the value of 5,000,000*l.* had been raised.—2. To work the side lodes, which at a good price for copper had paid as much as 20,000*l.* a year profit.—3. To test the white rock and Morfadu lodes, upon which they had already spent 1260*l.*, and wanted 600*l.* more.

When the company first commenced operations the price of copper enabled them to do all this work, and to make a small monthly profit, while they were also laying open ore ground for future operations. But all at once, copper dropped in price, while coals, iron, other materials, and labour rose to such an extent that the effect on the finances was most serious.

In about three years up to that time the company had raised 8470 tons of copper ore, 634 tons of sulphur, 509 tons of precipitate, 225 tons of blue stone, and 3298 tons of ochre. The price first obtained was 6*l.* 8*s.* per ton for best copper ore, 2*l.* 9*s.* for seconds, which suddenly dropped No. 1 to 3*l.* 9*s.*, No. 2 to 13*s.* 6*d.* The precipitate which had sold at 13*l.* 6*s.* 6*d.* dropped to 4*l.* 14*s.* (same percentage), and it was clearly shown that this fall in price had made a difference on the sales by the company of 17,650*l.*, and had metals continued at the original price these sales would have resulted in a profit of 11,158*l.* 18*s.* 3*d.*, instead of a loss. Had coals and iron also kept at the original price the profits would have been 20,000*l.* Since the sales here referred to (up to Jan. 1874), and amounting in the aggregate at the depressed price to 32,006*l.* 15*s.* 7*d.*, the company have sold 6914 tons of copper ore, 539 tons of copper precipitate, 1580 tons of sulphur, 1857 tons of ochre, and 157 tons of blue stone. And I believe I am correct in stating that the present returns of the mine would at the old prices for the ores leave a profit, besides providing funds for driving the 90 fm. level cross-cut south.

Further, I believe that few shareholders, who merely look to the low prices to which the shares of this company have fallen, know the inherent value and capabilities of their property, the machinery upon which alone cost 10,000*l.*; and I also know that few companies have had more attention paid to it by managers and directors, or have given more trouble and anxiety to both. Neither directors nor managers could control the price of copper, any more than Cornish miners could control the prices of tin: and of late they have looked forward to the 90 cross-cut south, and still look to it, as the fairy wand that shall brighten their prospects and reward them for all their disappointments and trouble.

A LARGE SHAREHOLDER.

WELL-SELECTED MINES AS INVESTMENTS.

SIR,—You have politely inserted in your columns several communications of mine at various intervals, and, as it is some time since I troubled you with a similar request, I solicit a repetition of the favour. My very considerable experience as a dealer in mining stocks of all kinds, and my intimate knowledge of the course of the markets, will, at all events, to your courteous consideration justify my present intrusion. You are very well aware, Sir, perhaps better than anybody else, that very great diversity of opinion exists at present as to the prospects of the metal trade, and, consequently, of mining, for, of course, upon our commerce in metals mining operations must depend. There are experienced men who believe that the day is distant, and some of them suppose far distant, when the demand for metals at home or abroad will assume a more animated character, but perhaps the majority believe that the time for a revival is not far off. I am with the majority in this instance, but wish to remind all concerned that much depends upon themselves. There must be fair dealings, truthful representations as to mining properties; "bulling" and "bearing" on the Stock Exchange in the metal markets, and unprincipled puffing of mining shares, must give place to legitimate dealing, and a careful observance of the acknowledged principles of political economy. Revival cannot be created by outcry or agitation—it cannot be wrought as Moody and Sankey performed their beneficent work by singing hymns and quoting pertinent and incisive texts. All the principles of philosophical enterprise must be brought to bear in the trade for metals, and in supplying the material for that trade from the mines. Properties must be selected with geological skill, and worked scientifically, economically, perseveringly, and with adequate machinery and capital; and if these imperative conditions are obeyed it will be as it was before, no properties in the kingdom will equal those connected with mining.

Mining has been exposed to one fatality in a remarkable degree—a single failure frightens a multitude of investors. If a ship founders, or strikes, or is destroyed by fire it does not interfere with the progress of shipbuilding. If a factory chimney fall or a factory is burned it is not permitted to interfere with the course of textile production. If a bank fail persons with money do not give up banking; but if a mine be inundated or a course of ore suddenly disappears mine investors raise a hue and cry against mining, and bring down the value of the class of property in which they are interested, frightening outsiders from embarking in other and very excellent undertakings of the same nature. The extraordinary impatience of shareholders of mines is one of the chief impediments to success. Very generally the capital with which the working is originated is too small, and before shafts are adequately sunk and levels driven dividends are looked for, and perhaps meetings are convened, which instead of supplying sufficient mechanical appliances and the capital to procure and work them cry out for "a wind up," and the property is abandoned to the possession of wiser men, who make fortunes from it.

In dull times like the present capitalists are very timid; they shake their heads and talk of the risk of mining, forgetting the aphorism of the greater Napoleon when contemplating the invasion of England—"The prize is worth the hazard of the undertaking." There is hazard everywhere in commerce. The ship encounters storms, the farm is exposed to capricious seasons, the loanmonger is in danger from dishonest or insolvent Governments, and, in truth, there is far less risk in working a properly chosen piece of ore ground than in any other enterprise for profit, and the results, if successful, surpass in their magnitude those of the best commercial speculations—for all commerce is speculative, and all investment is such, even in Consols.

It is very difficult to convince people with spare cash that the proper time to buy mining shares is when mining is at a low ebb, yet in other departments where there is venture this is well understood. When there was great depreciation in the cotton trade a merchant of our acquaintance sold off all his ordinary stock at a loss of 10,000*l.*, buying at the low market figure prices went up, and at next stock-taking he had cleared up his loss, and won 20,000*l.* by his spirited and judicious procedure. This is, on like principle, the time to invest in mining shares: the market will go up when either peace or war becomes certain, and fortunes will be realised. Not long ago shares were bought under my advice at 3*l.*—they are now worth 11*l.* 10*s.*; and I could with great certainty and a good conscience advise purchases in other directions where the purchasers are sure to be winners. There are comparatively but few tin mines open to present speculation, but even for these room may be found. Progressive and dividend copper mines not a few are available. Coal is now cheaper than it has been for more years than most of us can remember, yet collieries pay, and as trade revives shares in such undertakings will return large profits if bought at present prices.

Lead mines are, however, the most eligible for investment. Shares in many indubitably good mines are at low quotations, and the metal must rise, for we do not mine up nearly sufficient for our present wants, and the prospect of increased demand is illimitable. Never before were there such building projects on foot in Great Britain, France, the United States, British North America, and Australasia, and never before was lead in such great demand for building purposes. The present bitter north east winds show that ice in large quantities is floating in the Baltic, and that the ports of Northern Europe will be soon open to our trade, and stocks in metals are low there. Investors would do well in making immediate purchases in good progressive and also in dividend-paying lead mines at present low prices.

England, Wales, Scotland, and Mona offer great advantages to adventurers in lead mining—Great Laxey, Leadhills, Snailbeach, Roman Gravels, Tankerville, Pateley Bridge, West Craven Moor, West Chiverton, Grogwinion, and the Van are instances. Of Van Consols, west of the Van, it is said that "upwards of 50,000*l.* worth of lead has been sent to market, the produce of the back of the lode at and above the adit level." East Van has proved a great and profitable undertaking, and yet, after an important advance, the shares can be bought at one-fourth the price of those of the Van. From the contiguity of these last two mines there can be no misgiving that the shares of East Van will speedily rise to a level with those of its older sister. I would finally say to investors that now is the time to invest in mines, especially in lead mines.

GEORGE BUDGE.
Exchange Buildings, City.

BEDFORD UNITED MINES.

SIR,—As the letters of your correspondents "Local Shareholder" and "Common Sense Shareholder" are likely to mislead, I must beg the insertion of a few lines in reply. It is not in contemplation to build a house for the manager, but to make one of the cottages in the mine (which the company hold with the lease) a residence for him, the committee being of opinion that it would be to the interest of the shareholders were he residing on the spot. The duties of storekeeper will be placed in the hands of one of the company's servants without any additional cost to the adventurers. These trivial matters could just as well have been explained by letter as to have occupied your valuable space.

T. B. LAWS, Secretary.
Cornhill, March 19.

BEDFORD UNITED MINE.

SIR,—I quite agree with the writers of the letters which appeared in the *Mining Journal* of last week, signed "Common Sense Shareholder" and "Local Shareholder," that the meetings of the mine should be held occasionally on the mine—say, once a year at least. I think it is very desirable wherever practicable that all mine meetings should be held occasionally at the account-house of the mine, which affords the opportunity for practical suggestions for improvements in the working of mines, and an interchange of ideas amongst the shareholders, who invariably attend in larger numbers than when the meetings are held in London, and would I think have a tendency to remove the complaints of local shareholders to some extent which so frequently find a place in your columns. I also deprecate any additions to the already heavy cost of the present management, believing it to be quite unnecessary; if a change is made at all it should be in the reduction of the salaries of some of the officials. I am not without hope that with more economical management, and an improved price for copper, this mine will at no distant period relieve the shareholders from further calls, if not make a return to them in dividends.

ANOTHER SHAREHOLDER.
March 22.

BEDFORD UNITED MINES.

SIR,—The report in the Journal of March 10 of the meeting of the shareholders of these mines held on the 7th, and the minutes of the same meeting, as sent me from the office, I have most carefully read, marked, and inwardly digested. I have also read the two letters which appeared in last week's Journal respecting the unheard of proceedings at this meeting, instigated, I should imagine, by those who hold the reins of government. The remarks and suggestions made by your two correspondents I consider extremely mild indeed compared to what the resolutions passed and remarks made at the meeting would naturally and reasonably call for. A resolution was passed at the meeting that Capt. Goldsworthy, who is in the Isle of Wight, be requested to sign all monthly cost-sheets. As Capt. Goldsworthy is in the Isle of Wight he cannot possibly know or have the least notion whether the cost-sheets be correct or not, therefore to pass a resolution for him to sign them is, to say the least of it, so extremely absurd as to call for no further remark than that the shareholders who did not attend the meeting are allowed to assume that the committee and majority of the four shareholders who did attend the meeting have lost all confidence in their local purser. But this is not all, for will not the fact of having passed a resolution requesting Capt. Goldsworthy to sign all cost-sheets give all shareholders and the public in general reason to think something in reference to past cost-sheets has been going wrong, but that it may for the time probably be partially remedied by administering the mild castigation—the above resolution? Then again does not the appointment of a storekeeper, who is to be made responsible for receipt and delivery of all materials, throw great reflections and discredit on the late manager, and now resident agent, and cause shareholders to think him untrustworthy, and to treat him with contempt. I think the general body of shareholders are too gentlemanly to allow these two officers to be treated in such a clandestine manner without calling a meeting to give them a chance of defence, and if they could not then and there satisfactorily defend themselves the duty of the company would be to dismiss them at once.

In reference to the manager's house, I might say that there has been already a considerable outlay made in altering the large office on the mine to make it comfortable and suitable for the manager, as he is a single man; therefore, I submit that further expense incurred for accommodation is unnecessary and superfluous. Will the shareholders consider any longer that they have entrusted the management of their property in the hands of a wise and prudent committee and secretary, when they say that although they have got an experienced agent to take the whole charge of the mine during Captain Goldsworthy's absence, yet this experienced agent is to follow the instructions given him by Capt. Goldsworthy, who is in the Isle of Wight? This is one of the absurdities of the London management again, for many hundred things in a mine require immediate supervision, or nearly so, but under present arrangements nothing can be done by this agent before he writes to the London office, through which his instructions must come, but before these instructions can come the London office must communicate with Captain Goldsworthy in the Isle of Wight. May not the shareholders say at once that the Bedford United Mines, near Tavistock, are managed by the London secretary, and that the man on the mine, assuming the appellation of manager, acts as his tool only? Will shareholders any longer quietly submit to such management, and pay calls to carry it out, without a question, protest, or investigation?

I notice that the Bridge lode has been spoken of by the secretary as one of great promise, and that, therefore, the company is about to drive to cut it. Now, the Bridge lode, so far as I can understand, has only been seen, but no one knows by who or when, in two or three shode pits, 6 or 8 ft. deep from surface, and the company at that time did not think well enough of it to continue the cross-cut far enough to cut it, although the mine at the time was most likely paying dividends; yet in the face of this, and having to pay such heavy calls at such a dull time as the present, when the prices of copper ore and other minerals are very low, and we have so many other more valuable and important points and places to develope, our allwise committee are about to call up money enough from the already overpressed shareholders to enable them to drive and cut this imaginary lode. It seems strange the secretary can tell how far the cross-cut has been driven towards this lode, and how much remains to be driven, although he cannot find any record of when it was driven or filled up, or the price paid for doing it. In the 47 fm. level a long cross-cut has been driven to cut a south lode, and about 200 fathoms have been driven on its course, and a rise put up in it to surface, and nowhere in all this distance has it been worth enough to pay for the "toddy" drank in talking over it. This under present circumstances should be suspended. The saving on these two places would pay the cost of sinking the two winzes named in the agents' report presented to the meeting.

I have heard from three or four shareholders who are living within a very short distance of the mine that Dr. Foster has called attention to the sinking of these two winzes in order to ventilate the ends, so that the men shall not be injured with impure air. Is it not strange these two winzes, which would be cutting out good ore ground for stoping, should be allowed to remain untouched, high, and dry, yet a sump winze with abundance of water be sunk in next to the bottom level a long distance ahead of any end coming in under, when by waiting a few months it could be sunk dry for about half the cost? I trust Dr. Foster will be firm enough in the discharge of his duties to insist upon having his instructions carried out for the sake of the poor men. Although the Chairman at the meeting intimated, in fact said, the mine would be put in a good position by that and previous calls, yet I may say more calls will be required under the present management, but if some few influential shareholders were to take the initiative in calling a meeting I think they would get enough to assist them in putting the mine and its finances in the hands of an efficient and trustworthy management. I can assure the shareholders if this were done another call would not be required for the full development of this very valuable property to put it in a dividend-paying state. The failure of this mine, like others in the locality, is principally on account of not holding some meetings—say, one in every year at least—on the mine, so as to give distant shareholders an opportunity of visiting their property, or of having the chance of reading in the report or minutes of the meeting the result of the watchfulness and practical knowledge of the local shareholders, instead of having to listen to the patched-up, and in too many cases delusive, statements of inexperienced secretaries and two or three of their satellites when the meeting is held in London or at a distance. In many cases the secretary of a mine makes most of his money by share dealing or broking, and in order to fit his purposes according to his dealing propensity his tools, nicknamed managers, work the mine as directed. It is his own interest, and not that of the shareholders, which the secretary has an eye to, and in many cases if an agent or manager will not sacrifice his principles and character to the wishes of the secretary he has to sacrifice his situation, which is often done through the interest of the secretary with the committee without even giving the agent a chance of defence. Thus the honest and principled man has to suffer, and be out of a situation, while those who will lend their name to anything are strongly recommended by the secretary and friends, and, therefore, kept into a situation. Too many mines having been worked for the benefit of the secretary, and a few connected with him in share-dealing, is another great cause of so many failures in mining, and of so many investors being disheartened.—*March 21.*

A VIGILANT SHAREHOLDER.

THE TREATMENT OF POOR ORES.

SIR,—I must postpone answering your correspondent "Inquirer" and others until next week, as I am making arrangements for the working of the Virtuous Lady Mine by open quarrying its exceptionally large lode from surface, in order to treat 100 tons per day, which means at least 500 ounces silver, independent of gold, copper, and bi-products. I will also give a full and satisfactory explanation of the "New Consols" passing into liquidation instead of paying dividends. It is an ill wind that blows no one any good, and the downfall of the New Consols Mine, and the genuine success of the treatment of poor ores under my special management and latest patented improvements, will give me the honour and glory I have for years striven to attain. "Inquirer" no doubt chuckled within himself last week that he was dealing a sledge hammer blow at my earnest exertions to benefit myself and other mine sufferers, whereas open criticism and discussion I sincerely court; therefore, he might as well have amused himself by being less venomous, and carolling the last popular refrain, "I'll strike you with a feather."

Bishopsgate-street Within, March 22. T. J. BARNARD.

[ADVERTISEMENT.]

IMPORTANT NOTICE TO SHAREHOLDERS.

THE BRYNMAWR COAL AND IRON COMPANY.

SIR,—Two base and abusive letters, signed "Argus," have appeared in this month's editions of a paper called the Mining World. An anonymous slanderer I might well leave unanswered, telling him only that whenever and wherever he is prepared to avow himself, and come forward in an open and manly way to say whatever he wants to say against me, he will find me ready to meet him and to justify my own conduct.

Meanwhile, however, it may be desirable for those who are sought to be beguiled by this anonymous scribbler to ask who and what he is, and to ascertain whether he is the disinterested champion of the interests of unfortunate shareholders to which he pretends. I should like to ask whether it is true that this man "Argus" is a refugee from the Bankruptcy Court, and now a mere hanger-on upon anyone who will give him a few shillings to ask questions at a meeting, write a scurrilous letter, or help to fly a kite. This man, whom honourable men would not recognise in the public street, a mere hireling of anyone who wants a dirty hand for a dirty job; this man, forsooth, pretends to deep sympathy with the unfortunate shareholders in the Brynmawr Company, and offers them *his* disinterested pity and advice.

Now, I say again, let him come out in his true character and in his own name, and although in private life I should be sorry to recognise him or be seen to speak to him, yet for the satisfaction of the shareholders whom he seeks to befriend, many of whom are my personal friends and clients, I will answer everything he can allege or suggest as to my recommendation in days gone by of the shares of this company.

Nor is the channel through which this man "Argus" gets his effusions before the public eye likely to be regarded as the most disinterested. Many of your readers know something of the gentleman who rejoices in the proprietorship of the Mining World—whether in its profits or not—and who, in addition to this valuable property, advertises himself as the proprietor and conductor of the "Mining World Stock and Share Agency," "thus guaranteeing the most reliable information," and "providing an *absolute security* against ordinary risks."

He tells us also in his advertisement that "money will be received on deposit from intending investors pending a favourable period for purchase, such deposits to bear interest, and thus provide for a want long felt."

How kind, how good and disinterested to supply so long felt a want. Some public memorial should surely be inscribed with the name of William Dunbar Quinlan.

I will leave "Argus" alone until he takes off the mask, but in the meantime I give the following particulars of the Brynmawr Company:—

THE BRYNMAWR COAL AND IRON COMPANY (Limited).

This company was formed in September, 1873, for the purpose of purchasing and working, as one amalgamated concern, the collieries and ironworks which were principally owned by the late Mr. John Jayne, of Panty Bailea House, Abergavenny, whose death rendered it necessary to realise and arrange the several interests included in the partnerships then existing for carrying on the works.

In 20,000 shares, of which 10,000 shares, fully paid, were issued to the vendors in part payment of the purchase money, but not entitled to dividends until the remainder of the capital received 6 per cent.

The remaining 10,000 shares (class A) rank before the 10,000 deferred shares on the net profits made by the company in each year to the extent of a preferred dividend of 6 per cent., and will participate in any surplus of profits after providing a dividend of 6 per cent. on all the shares.

50,000*l.* was also raised by debentures bearing interest at 5 per cent. per annum, and secured on the property purchased.

DIRECTORS.

BASIL JAYNE, Esq., of Panty Bailea, near Abergavenny—Managing Director.
THOMAS GRATREX, Esq., Newport, Director of the Monmouthshire Railway.
Lord WILLIAM PHIPPS, Mulgrave Castle, Whitby.
W. E. JAYNE, Esq., Danybont, near Abergavenny.
JOHN HENRY BENHAM, Esq., 12, Ensleigh-street, Tavistock Square.

BANKERS.

Messrs. TWINING and CO., 215, Strand, London.
NATIONAL PROVINCIAL BANK OF ENGLAND, London and Abergavenny.

HEAD OFFICE—BYNYMAWR, NEAR TREDEGAR, SOUTH WALES.

The prospectus was never advertised in any paper by the "company." All the shares were subscribed for privately. Mr. Basil Jayne, I believe, took the last 23,000*l.* worth of preferred shares, thus closing the list.

Everyone who has bought shares of me had a copy of the prospectus and a report upon the valuation of the property, by Mr. Richard Bedlington, who states—Profits at 2*s.* per ton on the Tillery Colliery, 2*s.* 6*d.* per ton on Milfrain Colliery, and 10*s.* per ton on iron; this estimate to extend over the *whole life* of the collieries, and Mr. Bedlington leaves 26,746*l.* available yearly for dividends, equal to 13 per cent. on the capital. The directors are responsible for the prospectus and for Mr. Bedlington's report and valuation, and upon these I have acted and advised the purchase of shares, believing it to be one of the safest and best colliery companies in the country.

A dividend at the rate of 10 per cent. per annum was paid in February, 1874; a dividend at the rate of 10 per cent. per annum was paid in August, 1874; a dividend at the rate of 6 per cent. per annum was paid in February, 1875. A strike and lock-out shortly followed after, which lasted about six months, and put a stop to the August dividend; after this had ended a better state of things was expected, but unfortunately a collapse came in the coal and iron trades. Still I had every confidence in the property, knowing that a rise of 1*s.* per ton in the coal alone would make 5000*l.* per year difference in their favour on the sale of 200,000 tons of coal yearly, which they could do when in full working.

During the latter part of 1873, and throughout 1874, they were making from 7*s.* to 12*s.* per ton profit on coal, and 25*s.* to 35*s.* per ton on iron, but it now appears at the time the company was floated there was an existing contract in force to supply a certain quantity of the best coal screened, and from the best of the collieries, at a great loss, and this contract was not stated in the prospectus or elsewhere, and I only heard of it last month.

I was not a promoter of "Brynmawr," nor yet in any way connected with the company beyond being a shareholder; so I am in Van, Roman Gravels, Tankerville, West Chiverton, all of which I advise as safe, and the best "mining" (dividend) investments. I am in no way liable for the losses sustained by shareholders in "Brynmawr," through the collapse of the company—such an idea is absurd. If lead, now 14*l.* to 16*l.*, were to fall to 4*l.* or 5*l.* per ton during the next two or three years, and a six months' strike and lock-out take place in Van, Roman Gravels, Tankerville, and West Chiverton, what would become of these mines? Why, they would collapse altogether, but my clients could not come down upon me to refund the money. "All" investments have their pro's and con's.

I make these statements public because blame has been attached to me for advising the purchase of shares in a company which I conscientiously believed to be a thoroughly sound and genuine property, and still know it to be such.

I have been in business some 25 years, and it does not stand to reason I should knowingly or wilfully mislead anyone.

H. GOULD SHARP.
42, Poultry, London, E.C.

P.S.—CAUSES OF FAILURE: The above-named contract, by which I believe the company lost a large sum of money, part of which would have been paid in divi-

dends, leaving ample capital in hand to tide over the present unprecedented times. Also the late and present low prices of coal and iron. In 1874 coal realised at the pit's mouth 18s. to 20s. per ton; it now realises 5s. to 6s. per ton. During the same period iron realised 25s. to 35s. per ton profit. No one could foresee this frightful collapse in these trades. I do not hold myself responsible (neither am I responsible) for losses. I give advice to the best of my knowledge, information, and belief.

My Circulars prove that in January and February, 1875, I very strongly advised Vans at 23/., they rose to 41/. (now 37/., excluding all dividends since); also East Van at 1/. Many of my clients bought at 1/. per share and upwards, and sold them as high as 21/. and 22/. in February, 1876, and other good properties which have paid well.

Meetings of Public Companies.

ECONOMIC LIFE ASSURANCE SOCIETY.

The annual meeting of the members of this society was held on Saturday, at the offices, 6, New Bridge-street, Blackfriars,

Mr. HENRY BARNETT in the chair.

The notice convening the meeting was read by the SECRETARY. The auditors' report and statement of accounts were also read.

The CHAIRMAN said it would be his duty to move the adoption of the statement of accounts and the report; but, before doing so, it was usual for the Chairman to make some remarks on the affairs of the society. Perhaps the members would allow him to commence by expressing his gratification at meeting them to-day. Last year, in consequence of absence on the Continent, owing to illness in his family, he was unable to be present; but his place had been so well filled by his right hon. friend, Mr. Bouverie (the deputy chairman), that nobody could have had any real reason to regret his absence. The figures just read by the secretary appeared to the directors, and he hoped also to the members generally, to be decidedly satisfactory, and when he had drawn attention to them and had contrasted them with the figures of the previous year's accounts he thought they would observe with satisfaction that any increase or decrease in the items would appear to be in the right direction. No doubt there had been many difficulties to contend with during the past year. They all knew that commercial matters had not been very flourishing, and that the profits in business had not been such as to enable many people who under ordinary circumstances would insure their lives to do so; and the society had to contend for sometime past with very considerable competition, not only in their own way of business, but also with regard to the investments which they had to seek for the money that accumulates. The rate of interest had been generally low, as the members were probably aware, and it had been the earnest endeavour of the directors, by a judicious selection of investments, to keep up the rate of interest of the funds invested by the society at as good a scale as they had been until lately accustomed to receive. No doubt the rate had fallen within their recollection, though it was higher now than it was some years ago. At the same time they had been able to keep up a fair rate of percentage; in fact, the rate was about the same as in the previous year. It would be observed that the number of proposals received during the year had amounted to 498, as against 483 in the preceding year. That was an excess of 15 proposals; the policies issued, however, were on a larger scale, because the number issued was 422 against 386, showing that, on the whole, the proposals were of a more satisfactory character, and, therefore, there had actually been 36 more policies issued than in the preceding year. Then the amount insured was also considerably larger, being 355,865/., as compared with 290,315/. in 1875, showing a surplus of 65,550/. The average amount of policies issued was 91/ above the previous year, 843/. having been the average. With regard to the new premiums, these had also very satisfactorily progressed, the amount received being 11,264/., in comparison with 10,359/. in the previous year—or very nearly 1000/. more. The total premium income was 224,802/., as against 225,000/. This slight falling-off was owing to some large premium policies having fallen off. The total income 357,459/., as against 354,969/. in the previous year—a difference of 2490/., and besides the increase in the total revenue there had been a profit of between 6000/. and 7000/. from reversions falling in. The total assets at the close of the year amounted to 3,148,526/., this amount being 140,000/. in excess of the total amount of assets at the close of 1875. That result he though the members would agree with him as being a very substantial increase in the assets of the society. (Hear, hear.) The number of policies in force was 10,090, or 130 more than at the close of the previous year, and the amount insured (representing the total liabilities of the society) was 9 169,102/., as compared with 9,095,537/., showing an increase of 73.765/. As to the claims paid during the year he had also to report satisfactorily. In 1876 they had expected, according to the calculation of their actuary, that they might have lost 231 policies, and the claims upon them would amount to 250,582/. As matters had turned out they had only been called upon to pay 184 claims, and the amount had been 183,918/., showing a difference of 66,664/. in favour of the company—the calculation having been that amount in excess of the actual result. On the other hand, however, in the previous year there had been an excess of 29,193/., and they had now more than balanced that excess. He might remark while on this subject that during the three years that had elapsed since the last quinquennium, although they had had in one year to pay more than was anticipated in the other two, they had paid considerably less, and, on the whole, the balance in their favour was 110,000/.—that is, they had had in three years to pay that amount less than estimated according to the ordinary calculations. The average amount of the claims paid was about the same as in the previous year, or rather less, the figures being 1005/., as against 1052/. in 1875; and the age at which the assured had died had been about the same—61 years, as against an average of 62 in the previous year. Then there was one instance which they always liked to quote—a large bonus accruing on a policy. During the year they had paid a bonus at the rate of 116½ per cent. The policy was effected at the age of 57 years for 800/., and the representatives of the assured, who died at the age of 89 years, received 932/. in addition for bonus. With regard to the rate of interest, to which he had already made a slight allusion, that had been at the average rate of 4/. 7s. 6d. per cent., as against 4/. 7s. 7d. in the previous year. The members would recollect at the last annual meeting power was given to the directors to alter some provisions of the deed with regard to investment in securities, and they had received power to invest in Colonial securities. They had taken advantage of that power as far as they had been able at present prudently to do so; but, as many of the members would be aware, the best class of Colonial securities had been so much sought after that the prices had risen very much, and that, therefore, the interest on such an investment would not be so good as it was some years ago. However, the directors had invested 120,000/. in the best Colonial securities, which were yielding an average of 4/. 7s. 11d. per cent. That would, of course, help them a little, and they would endeavour to invest more funds in the same direction. There was one class of security which suited the society very well indeed, though it did not suit general investors—the loans raised for local purposes under Acts of Parliament. However, there had been very little opportunity for this class of investment during the past year. There was one point upon which he particularly wished to say a few words, that was upon the means which they were to adopt to meet the competition, and to keep pace with the times. In dealing with this matter the directors had been very cautious not to damage the society, or to injure its interests. With regard to the question of commission an alteration had been made during the past year. In about the year 1870, when the Albert and European came to grief, a great hue and cry was raised especially about the extravagant rate of commission given by these offices. The directors were rather of opinion that there was something in the matter, and after very careful consideration among themselves, and with the full concurrence of the members at a general meeting, they determined upon changing the system then in existence of paying 5 per cent. continuously on policies accepted to one payment of 15 per cent., which was to close the matter. This was considered a fair remuneration, and it would do away with some defects which it was thought existed in the old system which had hitherto prevailed. After five or six years' experience of this the directors were not a little staggered and startled to find that, in spite of all the inducements of low premiums and other advantages, the business had not increased in the way which had been anticipated. After carefully considering the matter the directors had come to the conclusion, rightly or wrongly, that the alteration in the commission allowed had had something to do with this. Under these circumstances the directors had after very careful consideration reverted to 5 per cent. commission since July last; and, whether or not owing to that circumstance he could not say, the business had increased in a most satisfactory manner, especially during the last six months. He hoped this action of the directors would meet with the entire approval of the members. The business had not only increased, but the quality had also improved; for instance, the policies above 5000/. were more than in the previous year, so that altogether they could see the prospect of affair was favourable. If no unforeseen occurrence took place he believed that at the end of the quinquennial period now running the directors would have a very satisfactory report to present to the proprietors. Having invited remarks and enquiries, he (the Chairman) concluded by moving the adoption of the accounts and the annual statement.——The Right Hon. E. PLEYDELL BOUVERIE (deputy chairman) seconded the motion.

The CHAIRMAN added that at the time the alteration was made with respect to the investments in Colonial securities the directors received power to issue endowment policies. They had not, however, done much in that direction at present; and, in reply to Mr. Dumphy, he (the Chairman) stated that the society still commuted the 5 per cent. commission to a payment in one sum if desired.

A short discussion ensued, in the course of which satisfaction was expressed at the position of the society; and, the CHAIRMAN having replied to a few points raised, the accounts and the report were unanimously adopted.——The CHAIRMAN proposed the re-election of Messrs. Stilwell, Howell, Buckley, and Gordon as auditors for the current year.——The DEPUTY CHAIRMAN seconded the motion, which was carried.——A vote of thanks to the directors for their able management of the society having been proposed and seconded, was carried unanimously.

OLD TREBURGETT SILVER AND LEAD MINING COMPANY.

The eighth ordinary general meeting of shareholders was held at the offices of the company, St. Helen's-place, on Thursday,

Mr. T. A. MASEY in the chair.

Mr. F. R. WILSON (the secretary) read the following report of the directors:—

The directors have at last the gratification of announcing that the protracted negociations for a reduction in the royalty has resulted in a working arrangement between the lords, by which the royalty payable by the company has been reduced from 1-10th to 1-15th. As soon as the necessary legal documents are completed the royalty now due, amounting to about 1300/., will be payable, and the directors are anxious to make some provision to meet this liability. A reference to the balance-sheet will show that the position of the company as to its liabilities and sales of ore is nearly the same as last year, although the late fluctuations in the price of silver has lessened the average amount received per ton by 1/. 10s. 2d., making a great difference in the receipts. Still, some 1500/. has been expended out of the receipts during the year in permanent works, as seen in Captains Hancock and Bryant's report. Masey's shaft has been continued to the 40 fm. level, giving good ventilation to the mine to that depth, and should be carried down with all speed to the 60 fm. level. This may be accomplished before the end of the year, thus opening up several levels now idle. To do this, however, will require a winding engine and other plant and material. The engine shaft should also be continued at once, and another 10 fms. in depth might be reached in six months. This shaft, owing to limited means, has hitherto been only sunk 10 fms. a year, instead of 20 fms. These and other important operations are absolutely necessary to place the mine in a position to make increased returns, and which the value and importance of the property warrant and absolutely require. To carry out these operations, to pay off what is owing for royalty, and to provide for working expenses will require about 5000/., which the directors propose raising by the issue of debentures for a period of five years, bearing interest at the rate of 10 per cent. per annum, payable half-yearly. The directors trust the shareholders will assist them in making every effort to take up or place the debentures, as the welfare and existence of the company depend upon a certain amount of capital being forthwith subscribed, as' independently of the foregoing requirements, the directors are likely to be called upon to provide immediate funds to meet an unlooked for liability, owing to the reported unexpected difficulties of a smelting firm. Capt. A. B. Brown, being ordered abroad with his regiment, has resigned.

The CHAIRMAN, in moving the adoption of the report and balance-sheet, said he knew of nothing which called for particular notice. The adverse balance of profit and loss account had been increased from 1076/. to about 1093/. The company had rubbed on in the interval in a sort of hand-to-mouth manner, without much increasing the liabilities, and the directors had done as much as they could to develope the property. They had done a good deal. They had put down Masey's shaft, which ever since he had been connected with the mine he had wished to see put down, as it would give a second shaft, and open up a new portion of the mine, and the only way to make mining remunerative was to have new levels opened up. In this mine, unfortunately, they had only been able to have three levels, two of which had given all the ore which had been sold. The third level had been unproductive. This had gone on for four years, during which period they had raised and sold something like 50,000/. worth of ore, showing the mine was good and intrinsically valuable, but sufficient ore ground had not been opened up to make the mine profitable. In order to make it profitable they must sink shafts upon six or seven levels; this could be done, and the company was in a position to do it. They could put Masey's shaft down to the 60 fm. level easily, where they could begin to raise as well as sink, and if they got down to that they could bring three or four levels which were now lying idle into operation, and get the engine-shaft down another 10 fathoms, so that at the end of the year the prospects of the company would be very much greater. It was always an unpleasant thing to ask for money, more especially when shareholders expected to receive a dividend; but upon the present occasion, when he asked them for the money, he did so with some degree of confidence. Everyone must admit that the mine was now a property, and a substantial reality. The mine had been worked for four years, and had produced 50,000/. worth of ore, and that amount could be doubled if the mine were more thoroughly opened, and he believed that if the necessary amount was forthcoming the mine would amply repay the outlay. The royalty had been reduced from 1-10th to 1-15th, and he hoped the mine would go on for the next 30 or 40 years upon that basis. He hoped that the company would have been able to borrow the money, but within the last few days a calamity had occurred which they could not foresee, and which was an ordinary business calamity to persons who bought and sold. The company had sold ore and taken bills, and he was afraid some of those bills would come back upon their hands, and if so the company would want more money, therefore the best way to meet the difficulty was to issue debentures and pay up all the liabilities, and put the company in a good position. He was glad to say that the mine was paying well. The third level, which had been unproductive, was becoming productive, and Capt. Hancock had brought up a stone of rich copper ore, which resulted from the level which had recently come in operation. There was no doubt the property only required more money to open up more levels, and give greater returns. If the two levels could raise 10,000/. a year, and they could open up three or four more levels, it was merely a rule of three as to what the return would be. The directors were ready to take their proportion of the debentures with the other shareholders, and he hoped the shareholders present to-day would assist by giving in their names to whatever amount they might feel jusified in subscribing for. The debentures would be issued in sums of 10/., 20/., 30/., 40/., 50/., and 100/., so as to meet the means of all classes of shareholders. The security was the engines, the plant, and the leases of the property, which was ample to cover the 5000/. which the directors proposed to raise.

Mr. BRETT seconded the resolution for the adoption of the report and accounts.

Mr. WATERMAN (director) in supporting the resolution, said they had kept the liabilities at the lowest possible amount. The capital expenditure on the mine was not large compared with that of other companies. There was no doubt the mine was a real and substantial property; it was not a speculation, as it might have been some years ago, when the company was first started. He was down at the mine a few days ago, and was very much encouraged by the appearance of it. There were one or two points in Mr. Hancock's report which deserved careful consideration. Hitherto they had had no appearance of the cross cuts turning out advantageously, but there was every prospect now that such would be the case, and that was a point of very great importance, because if they turned out as was hoped it would be a source of great pecuniary advantage to the shareholders. He urged upon the shareholders the great desirability of subscribing for the debentures, because the mine could not be carried on without capital. The amount already expended had been very small, and the amount now asked for was not large, nor was it to be expended upon what could be called a speculative concern. The money was really wanted to develope a *bona fide* concern. (Hear, hear.)

The CHAIRMAN, in answer to a question, said the lease had 15 years to run, and 20 at the end of that on the same terms. With regard to the valuation of the plant in the event of sale, of course it would depend upon whether it was realised as a going concern or not, but there was amply sufficient to fully secure the debentures. Everything on the mine was in good working order. He hoped the mine would never be sold as a going concern, because, if it were, other parties would come in and benefit by the outlay which had already been made. The real pressure was the liability of having to find money to meet the loss which had been so unexpectedly incurred, to pay off the liabilities, and to meet the cost of a new engine. In round figures, the amount of loss would not exceed 1500/. It might have been more, but the directors had stopped the delivery of ore.

Mr. WILSON pointed out that the mine was paying expenses, and the money was principally wanted to put up a new winding-engine at Messer's shaft, to continue the dead work, and put the mine in thoroughly good order.

Capt. HANCOCK, in answer to Mr. Atrell, said the prospects of the mine were never better than now. In the 102 there was a splendid lode from 4 to 6 ft. wide; it was not rich, but there was ore in it, and he believed that if they went down another 10 fms. they would have a regular gem. With respect to Messer's shaft, it was down to the 40. Hitherto they had laboured under trouble with regard to ventilation, but they would commence with driving a level in the new ground, and the chances were good in that part of the mine, and then they would go down to the best ore ground under the 80. When that level was worked properly they were in good paying ground. The 80 was in abeyance for the time. There was a lode in the stope which they thought very highly of, and he calculated to intersect that part of the lode in the latter part of this month. There was a lode there which was called the new lode. The 90 had just reached productive ground, and they might look for early returns from the 80 and 90, and also the 102. He had broken a rock of rich copper ore, which was worth 18 or 20 per cent. of copper, and also contained silver.

Mr. BRETT said that, as a large and original shareholder, his hopes with regard to the mine were now better than ever.

Mr. HOCKIN, of Camelford, within four miles of the mine, said that he had spoken to one of the workmen who had worked at Doicoath, Tincroft, and West Caradon, and his opinion was very high of the mine. It was the general opinion in the neighbourhood that the mine would turn out one of the best in the county of Cornwall.

Mr. ATRELL did not take so hopeful a view of the future of the mine. He also thought the directors ought to work without remuneration till the mine paid a dividend.

Mr. PETER WATSON said the directors had not only worked hard, but also rendered themselves liable to the banker for money advanced to the company, and the shareholders could scarcely expect gentlemen to give their time and render themselves liable without some remuneration.

Mr. WILSON said the fees scarcely paid the travelling expenses of the directors who lived out of London.

A SHAREHOLDER expressed an opinion that the prospects of the mine were never better, and after a short discussion the report was adopted.

Mr. C. J. Lee was then re-appointed auditor, with a remuneration of 10 guineas.

The retiring director, Mr. Lewis Waterman, was then re elected.

Several gentlemen then put down their names as subscribers to the debentures.

A vote of thanks to the Chairman and directors closed the proceedings.

TREBEIGH CONSOLS MINING COMPANY.

A general meeting of adventurers was held on Thursday at the offices, Crosby House, 95, Bishopsgate-street Within'

General TATE in the chair.

Mr. WILLIAM WARD (secretary) read the notice convening the meeting, and the minutes of the previous meeting, which were confirmed. The accounts made up to the date of the meeting showed that the labour costs for the four months had amounted to 356/. 18s. 3d., the merchants' bills to 361/. 15s. 10d., the interest and discount on prompt payment and calls, 46/. 0s. 2d., and with other small amounts the total disbursements were 1788/. 12s. 4d., which included the balance of 997/. 0s. 7d. brought down against the mine at the last meeting. The receipts were by a call of 2s. per share made on Nov. 30 last 1200/., leaving the balance against the adventurers of 588/. 12s. 4d.

Mr. WARD then read the following report from the agent:—

March 20.—Since the last general meeting, held in London on Nov. 30, 1876, Ward's engine-shaft has been sunk 12 fms. 4 ft., being now 30 fms. 2 ft. below the surface. About 3½ fms. above the bottom we intersected one small branch about 2 in. wide, its bearing being about north-west, from which we broke some good silver-lead and blende ores. We have since discovered two other small branches, which are running about 25° north of west, of similar character to the above. All these branches are embedded in about 6 ft. of killas ground, and coming together going east, and letting out much water. A box of the stuff broken from the bottom of the shaft will be sent to the office in time to be presented at the meeting on Thursday next. In conclusion, seeing that we have such good prospects in the bottom of the shaft, on what I am sanguine will be found a regular and productive lode in depth, I strongly advise the sinking of the shaft being pushed on with all speed—*i.e.*, as soon as the cross-cut towards the north, or main, lode is driven sufficiently to admit of its being done, then we could drive and sink both at one time. If the above recommendations are carried out, and the ground in the shaft continues as favourable for progress as at present, we could see both the lodes 12 fms. deeper, and also prove the lode in the 30 fm. level some 15 or 20 fms. in length about the end of September next, and where from present indications there are strong reasons to believe the mine will be found a most valuable property. We hope to see the lode in the 30 fm. level cross-cut by the end of May next. The estimated cost for carrying out the above, with pitwork, timber, and everything included will be about 180/. per month.—J. GIFFORD.—P.S. Our engines are doing good duty, at a cost of about 20/. per month for coals.

Mr. SUTTON asked if it was expected that the lode would be met in the 30 fm. level cross cut by the month of May next?——Capt. GIFFORD replied in the affirmative, and he calculated that within about one month from the present time the sinking of the shaft would be resumed. As he had explained in his report, this would necessarily materially increase the monthly costs. The branches of the lode were already being met with in the shaft, and so far as he could judge he believed they would go down with the lode for a great distance. He was very sanguine of the success of the mine, as he had stated in his report.

Mr. ENDEAN asked if the piece of killas which was exhibited at the meeting had been brought from the shaft?——Capt. GIFFORD replied that it had been brought from the bottom of the shaft, the distance from surface being 30 fms. 2 ft.; it came from under a hard floor of rock.

Mr. ENDEAN asked if there was any adit level in this shaft?——Capt. GIFFORD said there was not. In reply to further questions from Mr. Endean, Capt. Gifford said that their engine was one of 40-in. cylinder, and that it worked at from three to four strokes per minute. By the addition of some 12-in. lifts that engine would take them 100 fms. deeper. The total amount of coals used at the mine was between 19 and 20 tons per month. The boiler was supplied with water by the water taken from the mine to surface, as they had no adit level.

The CHAIRMAN said they appeared to meet together under very favourable circumstances on that occasion. This fact would have been gathered from the report of Capt. Gifford, which had been read to the meeting. He would formally move that the statement of accounts be received, adopted, and entered on the minutes.

Mr. SUTTON seconded the motion, which was carried unanimously.

The CHAIRMAN said it appeared from the accounts that there was a balance of within 12/. of 600/. against the mine. A call of 1s. per share would nearly meet that; but, as it would not quite do so, he thought it better that the call should be 1s. 6d. per share. It could, if thought desirable, be made payable in two instalments.

Mr. SUTTON thought that would be the desirable plan to adopt, as the calls had been more serious than some of the adventurers might have anticipated. A cost-sheet would be due on Saturday, but that would be met, and they had to provide now for the one due in the early part of April.

Mr. TANKERD moved that the call should be 1s. 6d. per share, payable 1s. on April 14, and the remainder on May 31. At the same time, he wished to take the opportunity of congratulating the adventurers on the success that had so far attended their endeavours to take down the shaft some considerable distance, and upon the fact that such favourable indications had been reached. He, as one of the adventurers, had scarcely anticipated such a favourable result at this time. He had thought that Capt. Gifford once said the lode would be met with at 30 fms. from surface. This was at the very first meeting, before the formation of the adventure. He had understood Capt. Gifford to say that if the shaft were taken down 30 fms. the lode would be cut, and that it would be seen by a cross cut in the 20. However, he believed that Captain Gifford had not intended to convey that idea. He thought the prospects of the mine were very good, especially when he saw the specimen of killas, which Mr. Endean had informed him would, in all probability, be very productive of ore. He quite le ved that the price at which their shares were quoted did not by any means represent their true value.

Capt. GIFFORD said Mr. Tankard had quite misunderstood him with respect to the cutting of the lode, whether or not through his (Capt. Gifford's) own fault he could not say. No mining man could have anticipated that the lode would be cut at the 30. He believed that some of the shareholders had understood his remarks as Mr. Tankard had done, while others had understood them in the sense in which he meant them to be understood.

The CHAIRMAN remarked that the general feeling of the adventurers was one of thanks to Capt. Gifford for his exertions on their behalf.

The resolution making the call was then adopted.

Mr. WARD mentioned that since the previous meeting of the adventurers Mr. Jehu Hitchens, having sold his shares, had ceased to be a member of the committee of management, and it would be now for the adventurers to appoint some other gentleman on the committee.

On the motion being put, it was carried unanimously that Gen. Tate be elected a member of the committee of management.

The CHAIRMAN having briefly returned thanks, the meeting was constituted special for the purpose of dealing with 300 forfeited shares.

Mr. WARD said the 300 shares which the meeting had to deal with were lately the property of Mr. Patrick Cruikshank, who died very suddenly. Nobody had administered to his estate, or taken any notice of the demand for calls on his shares. They had, therefore been duly forfeited by a special meeting, and that forfeiture had been confirmed. It was quite in the power of the adventurers to deal with the shares in whatever way they might think proper. The shares had, including the call now made, 7s. due upon each of them.

After some conversation it was decided, on the motion of Mr. LATRIELLE, seconded by Mr. H. PEARCE, that the shares should be offered to the adventurers *pro rata* at 7s. per share, including all calls.

Votes of thanks to the Chairman and secretary closed the proceedings.

SAINT PATRICK LEAD MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Coleman-street, London, on Thursday,

Mr. A. W. THOMAS in the chair.

Mr. R. CUMMING (the secretary) read the notice convening the meeting and agent's report, which was as follows:—

March 6.—Since the last yearly report I am glad to say all the operations in this mine have been carried on without the slightest interruption from influx of water or other causes, the former of which has seriously retarded the progress of nearly all the surrounding mines, in consequence of the unusually wet season. This mine has been entirely dry to the deepest point yet seen, being 135 yards to the bottom of the engine-shaft, and although no discoveries to value have yet been made I am enabled to say that at no time have I had greater confidence in its success than I now have, and from the present very favourable features which present themselves in the 120 yard cross cut north and in the 60 yard cross-cut north I shall be greatly mistaken if quick discoveries are not made in one or both of these drivings, and which I am expecting continually. A great deal of work has been expeditiously and cheaply done during this period. The bottom cross-cut has been driven northward 75 yards, the middle cross-cut 33 yards, and the 60 yard cross-cut 90 yards, besides the drivings on the main vein and other small experimental drivings.

In the bottom 120 yards cross-cut the first main vein has been intersected, and driven eastward upon for some few feet. On commencing the vein was somewhat irregular and disordered, but on driving 3 or 4 ft. it showed strongly in these bearing measures:—The white carboniferous limestone for 15 in. wide, containing several small ribs of solid ore from ¾ to 1 in. wide, and looked most promising for immediate and favourable results; on driving a little further, however, it became split up in such hard ground that it was deemed more desirable for the time to confine operations to the more speedy ground in the cross-course, by continuing the 120 yards cross-cut north upon it with full force, so as to reach the next main vein, which is now within a very short distance of the forebreast, and from which I confidently expect a valuable discovery of lead ore. With regard to the first main vein intersected in this cross-cut, I should calculate fully upon its regaining its full size and character when further developed from the influence

of the cross-course. This has invariably been the case in similar instances in this district, which shou'd be borne in mind when a convenient opportunity offers for continuing the driving. The chert measures in the 60 yards cross-cut north are of the finest bearing character, and very speed for driving, and I am fully satisfied the same stratification to the north and south of this property.

The CHAIRMAN, in moving the adoption of the report and accounts, made the following statement:—My co-directors and myself regret that we are unable to report to the shareholders any discovery of a tangable nature since the last general meeting, and it will be satisfactory to know that the time and money expended have been spent in a miner-like manner, and that considerable progress has been made in the development of the mine at the different levels, as will be seen by the plans before you. It will thus be seen that since commencing operations we have driven and sunk through some 420 yards of ground, besides thoroughly repairing and re-timbering the engine-shaft to a depth of 120 yards. It will be seen that we have intersected the first lode, known as Bramwell's, which was found to produce lead, but at this point not in sufficient quantities to pay for working, although I believe at a greater depth it will prove remunerative. It will be seen, also, that the 120 yard cross-cut is now within a fathom or two of the Chenny Rake lode, and as this lode has proved very rich in the mines to the west I not unreasonably attach great importance, and am looking forward with some anxiety to the cutting of this lode. As the largest shareholder, I may tell you I have been somewhat disappointed that our efforts have not yet been crowned with success, but for all this I have not in any way lost confidence in the undertaking. The development of a mine is necessarily of a somewhat slow process, and if we do not always meet with success where and when expected we must work the harder, and in a property of this description we know success is but a matter of time. I can give you an instance in our own immediate neighbourhood where success after a number of years has been attained. I refer to the Gorseld and Merllyn Mines, which for, I believe, five years struggled on without success, and amongst other operations they drove an adit level for some hundreds of yards upon what was considered a most promising lode, but without yielding lead in any large paying quantities. It afterwards occurred to someone that it would be well to prove this lode at a greater depth. This operation was commenced, and before the sinking had reached a depth of 3 ft. the commencement of what has since proved to be a grand course of ore was met with. This mine is the next mine now working to the north of St. Patrick—distance about 3 miles—and in precisely the same measures, therefore any day we may be rewarded with like results. Shareholders present are aware that the nominal capital of the company is 10,000*l.*, of which 6500*l.* has been expended in the purchase of the property, and in developing the mine over a period of two years. In order to provide funds for the future working of the mine the directors at a board meeting resolved to issue a portion of the remaining 3500 shares at par and *pro rata* to the present shareholders, and as all of the largest shareholders who had been consulted upon this matter approved this plan, I have no doubt the appeal will be readily responded to. We purpose offering shareholders one share for every five of their present holding, and by these means we believe shall have sufficient funds to place the mine in a self-supporting, and, we trust, a dividend state. Having no water charges, we are able to work the mine at a very reasonable cost. In conclusion, I beg to state that I shall take my proportion of shares now to be issued, which will amount to about one-sixth of the whole, and I trust now that success is apparently so near at hand, every shareholder will do likewise.

The CHAIRMAN then moved the adoption of the agent's report and the accounts, which was seconded by Mr. W. A. DUNN, and carried.——The CHAIRMAN moved that Mr. J. J. Lynch, a director, who retired by rotation and offered himself for re-election, be re-elected a director of the company, which was seconded by Mr. DUNN, and carried.——It was moved by the CHAIRMAN, seconded by Mr. LYNCH, that Mr. Francis Wood be re-elected the auditor of the company, which was carried.

A SHAREHOLDER asked upon what terms payment was to be made for the shares about to be issued?——The CHAIRMAN: As the money will not be required all at once the directors have decided to make the payments as easy as possible to meet the convenience of shareholders. We propose calling 5*s.* per share upon application, and afterwards calls of 5*s.* per share to be made at intervals of not less than three months until the shares are fully paid-up. Those shareholders, however, who prefer paying in full at once will receive a discount of 5 per cent.

A SHAREHOLDER: This arrangement is satisfactory.—A letter from Capt. Horatio P. Batchelor, who was unable to attend, and a holder of 800 shares, was here read, in which he stated he was thoroughly satisfied with the management, and believed a great and quick success awaited the operations, and that he should gladly take 100 of any shares that were to be allotted. The usual compliments terminated the meeting.

VAN MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, 14A, Austinfriars, on Tuesday,

Mr. WILLIAM PAGE in the chair.

Mr. W. J. LAVINGTON (the secretary) having read the notice convening the meeting, the report and accounts were taken as read.

The CHAIRMAN said: Gentlemen, I think it is not necessary that I should detain you with any lengthened remarks respecting these accounts. They are all sufficiently plain and intelligible to the whole of you. I will just, if you will allow me, go over a few of the main items. Taking the working account, it would appear that we have realised the very large sum of 112,727*l.*, and the result is that we have a balance of profit of 50,087*l.* 2*s.* 5*d.* Comparing that with 1875, I see our profit then was 42,865*l.*—or in other words, 7200*l.* more in 1876 than in 1875. If I go back to 1874 I find something similar there, the profits then being 32,999*l.*, therefore, there seems to be something like a similar increase in the net receipts of 1875 over 1874 and 1876 over 1875. Taking the dividends, in 1875 we paid 40,500*l.*, and in 1876 we paid 49,500*l.*; therefore, we have made an increased profit of something like 7200*l.*, and we have given you an increased dividend to the amount of 9500*l.* Turning to the expenditure, you will observe a charge there for law charges. We have not been very much in the habit of going into legal matters, but we fancied that we were assessed for a much higher amount than we ought to have been. We, therefore, appealed against it, and lost it, and have had to pay the legal expenses of the appeal. You will observe, again, there is 900*l.* 10*s.* 5*d.* charged for a new engine for dressing the waste halvans. Now, I do not know that it has been mentioned publicly, but we proposed dressing over the waste ores, and, as you see, we have already paid 900*l.*, and Captain Williams estimates that we shall require some 3000*l.* or 4000*l.* more to do all that is required to dress over these halvans. That amount Captain Williams calculates will all be made up by the sales we shall make during twelve months. After that period he calculates we should make something like 5000*l.* to 6000*l.* a year, and not for a year only, but for many, many years, for the quantity of halvans is something enormous. It would be almost impossible to say the amount of them. I do not think there is any other item in the accounts that I need say anything upon. You will observe we carry forward 587*l.* to the reserve fund. That fund now amounts to 4735*l.* I cannot do better than conclude by telling you that your affairs are in a perfectly sound, wholesome state. So far as your finances are concerned I never saw them better, and I think you will be all perfectly satisfied on that head. Capt. Williams is here, and his report will be read to you, and you will have an opportunity of asking him any question that you may wish to put respecting the underground working. I do not know that there is anything more I need say, but if any gentleman has any questions to ask I should be very pleased to answer him. I will conclude by moving—"That the directors' report and statement of accounts as circulated be received and adopted."——Mr. F. L. SLOUS: I beg to second that motion.

The CHAIRMAN: If possible it would be better to take your vote upon this resolution before we have Capt. Williams' report, because we shall get through the routine business, and leave you nothing else to do but devote your observations to Capt. Williams' report. Has any gentleman any remark to make upon this?

There being no response the motion was put and carried unanimously.

The CHAIRMAN: One of your directors, as customary, goes out by rotation. It is Mr. Oldrey. He is eligible, and offers himself for re-election. I have pleasure in moving "That Mr. Oldrey be re-elected a director of this company."

Mr. SLOUS: I have great pleasure in seconding it.

The motion was carried.

The CHAIRMAN: The next resolution is connected with the auditor. Mr. Whaley has been your auditor ever since the commencement of the mine, and has performed his duties in an exceptional manner. It is entirely a shareholders' question. Perhaps some shareholder will be kind enough to move that Mr. Whaley should be re-elected.

Mr. HUNKLL: I shall have very great pleasure in proposing that Mr. Whaley be re-elected as auditor of this company, and that his remuneration be ten guineas. He has fulfilled those duties for many years to the complete satisfaction of the company.——Mr. HUNT: I beg to second that.—The motion was carried.

Mr. LAVINGTON then read the following report from Capt. Williams:—

March 17.—As under I beg to hand you my annual report upon this mine, showing the work done since your last annual meeting.—The 105 Fathom Level: Since your last annual meeting this level has been extended 38 fathoms west of shaft. At a point 5 fathoms west of the shaft we cut into the side of the lode, where we found it to be worth 80*l.* per cubic fathom for lead ore. We also drove cross-cuts north in the 13 and 22 fm. levels, west of shaft, and in the latter cross-cut found a pretty good lode, and also in the level for the last 16 fathoms driving, but so far as seen not equal in value to that in the level above. This much, however, may be said, that not having taken down the lode to the full width it is impossible to give a full and fair valuation until such is done. We have commenced driving the 105 fathom level east.—The 90 Fathom Level: This level has been extended 28½ fms. west of shaft upon the main leader, which is worth on the average 60*l.* per cubic fathom for lead ore; this end is now 67½ fms. west of shaft. At a point in this level 65 fms. west of shaft we crossed south 45 ft. to communicate with the winze sunk in the shaft below the 60 fm. level. We have also crossed north at the same point 25 ft. to prove the width and value of the lode, which we find to be worth on an average 30*l.* per cubic fathom; the lode in the present end of the level is worth for width carried 35*l.* per cubic fathom. The lode has been stripped down to the full width in the side of this level for a length of 25 fms., starting westward from a point 8 fms. west of shaft.

A special feature in this section of ground is that the "bastard" lode is productive for about 3 fms. wide, and some patches of it are worth 100*l.* per cubic fathom. The whole width of ore ground here, including main lode and bastard, is 6½ fms., which will average for lead ore 30*l.* per cubic fathom. I may here remark that the bastard lode, here found productive, has not been tried at the corresponding point in the 105, and it is very possible, from the splendid lode going down on the bottom of this level, that when it is tried at the 105, south of the present level, we shall find it equally rich. The 90, east of shaft, has been extended 25 fms. upon a lode averaging in value 18*l.* per cubic fathom; the total length of this level now is 47 fathoms. We have proved the lode productive by crossing at points 30 and 40 fms. east of shaft, and in the latter cross-cut the lode was proved to be 7 fms. wide, intermixed throughout with lead ore; the lode in the present end is worth for lead and blende 12*l.* per cubic fathom.

The 75 fm. level has been extended 58 fms., and now measures 135 fms. west of shaft. The first 23 fathoms was driven upon the main leader, and was worth for lead ore 40*l.* per cubic fathom on an average. The last 35 fathoms has been driven on the hanging of the lode, which we have proved as to width and value by crossing at two points—at 125 fathoms and at 135 fathoms west of shaft. At the first cross-cut we found the lode 2 fathoms wide, which for the first fathom was worth 37*l.* per cubic fathom for lead ore, and the other fathom not worth valuing. At the second cross cut (at present end) we found the lode 10 ft. wide, and worth throughout for lead ore 20*l.* per cubic fathom. The level is now driving along the hanging, or south side of the lode. The lode is now opened to full width for 100 fathoms west of shaft. The stopes at work upon this section of ground are nine in number. Average width of lode 19 ft., worth 31*l.* per cubic fathom for lead ore. The 75 fm. level, east of shaft, has been extended 10 fathoms in the soft by side of the lode, and now measures 51 fathoms. We are taking down part of the lode in the present end, which is worth 22*l.* per fathom for lead. At a point about 10 fathoms east of shaft we have stripped down the lode to full width. We find it to be here 5 fathoms wide, and worth for lead ore 30*l.* per cubic fathom.

The 60 is now extended 151 fms. west of shaft, of which 7 fms. only have been driven during this year, the first 3 fms. of which was upon a lode worth 50*l.* per cubic fathom for lead ore; the present end is poor. The level at present is suspended, and the pare of men are engagod sinking a winze to the 75, at a point 140 fms. west of shaft, but as soon as the winze is completed we shall resume the driving of the level westward. We shall be safe in doing so now, which we were not before for fear of cutting into a fresh feed of water; but now that we have ample power in our new pumping-engine our fears in that direction are dispelled. The same level has been extended east of shaft 47 fms. upon the hanging or south side of the lode, and now measures 97 fathoms. We have tried the lode at several points in this level—at 50, 60, 70, and 80 fms. east of shaft, in each of which we find the lode more or less productive, especially in the 70 fm. level cross-cut, where it was worth for the first 5 ft. 20*l.* per cubic fathom for lead ore. The stopes in back of this level (12 in number), east and west of shaft, are worth on an average 22*l.* per cubic fathom. Mean width, 16 ft. 6 in. The stopes in back of the 45 fm. level, east and west of shaft, six in number, are worth 23*l.* 10*s.* per cubic fathom. Average width, 15 ft. 6 in.

The communications effected throughout the mine during the past year for the purposes of ventilation and transmission of stuff to fill up stopes are the following:—From the 90 to the 105, a winze at a point about 35 fms. west of shaft. From the 75 to the 90, two winzes, one at the 65 west and one at 22 fms. east of shaft. From the 60 to the 75, two winzes at the 120 and 140 west and one at 40 fms. east of shaft; also a rise from the stopes in the back of the 75 to the 60, at a point about 75 fms. west of shaft. From the 45 to the 60, a winze at 80 fms. east of shaft. The 45 fathom permanent level has been extended 47 fathoms, and now measures 100 fms. east and 47 fms. west of shaft. The said levels have also been connected with the various winzes by means of several cross-cuts of different lengths, measuring in the aggregate 36 fms., for the purpose of facilitating the filling up of the stopes, &c. A cross-cut 12 fms. long has been driven south from the 60 at a point 35 fathoms west of shaft, in order to commence driving the 60 fathom permanent level.—Pitwork: The 70 inch pumping-engine has been ready for some time. The new pitwork from the 105 fathom level to the surface is all but complete, and would have been completed some time ago had we not been waiting for the foundry people. The delay, however, is no loss, as owing to the continued wet weather we have had plenty of water for pumping. Several other additions and alterations have been made to the plant and machinery, all of which are in good working order. We have commenced clearing and excavating for the foundation of the 36-in. engine and crusher on the new halvan floors. In concluding my report, I think I can do nothing better than let the balance-sheet speak for the mine for the past year, simply adding that I see no reason to prevent our having such another next year.—W. WILLIAMS.

Mr. G. BATTERS: Capt. Williams, how long do you consider it will take you to work out one of the levels—(say) for instance, the 75? How many years' work would the 75 fm. level give you, working as you are working now?——Captain WILLIAMS: It would give us five years.

Mr. BATTERS: Then you have the 75 almost untouched, the 90 wholly untouched, and the 105 whole. That is, three levels, so you have 15 years' work before you if you were not to sink the shaft any deeper, and without taking into consideration the large quantity of ground at the back of the 60. the 35, and the 30?

Capt. WILLIAMS: But you must bear in mind to keep up the present returns you are bound to work those as well as the others.

Mr. BATTERS: Quite so; but as you have three levels, and it takes five years to work each of them, it would take 15 years to work the three.

Capt. WILLIAMS: I am now beginning to take them off.

Mr. BATTERS: But you say one level—say the 90 fm. level for argument's sake—would give you five years work with the present returns, then the 75 fm. level would take you more than five years to take away, as you would be aided and assisted by the other levels. All I mean to ask you is whether you have fifteen years' life in these levels if you do not sink the shaft?——Capt. WILLIAMS: I can hardly say.

Mr. GATTY: Is the 40 fm. level being stoped away?——Capt. WILLIAMS: Yes; and we find we have just come on the top of a run of ore there.

Mr. GATTY: In the 60 fm. level is the ore ground as regular as in the 45 fm. level?——Capt. WILLIAMS: Yes; more.

Mr. GATTY: And in the 90 fm. level?——Capt. WILLIAMS: We have not had time to prove that.

Mr. GATTY: So far as you have gone is it more than the 60 fm. level.——Capt. WILLIAMS: We have not gone through much of it yet. There is a splendid course of ore here (in the 90 fm. level). It is the best course of ore in the mine ahead of this level.

Mr. GATTY: Do you find it lengthening to the east of the shaft?——Captain WILLIAMS: Yes; there is some very good lead here now.

Mr. GATTY: And the level above is not so?——Capt. WILLIAMS: There is still lead there, but it is not very good.

Mr. BATTERS: Is the bottom level looking as well as you could expect, so far as you have seen it?——Capt. WILLIAMS: Yes; I believe that what I said years ago will come to pass, that was that the "bastard" lode would be the main lode in depth.

Mr. BATTERS: You expect to find the "bastard" part of the lode in the 105. Is it reached in the 90?——Capt. WILLIAMS: Yes. In reply to a further observation Capt. Williams said that the rich part of the lower levels had been the poorer parts of the levels above. As the lode was being sunk deeper the lode was very strong indeed.

Mr. GATTY: You expect to touch the lode at about the 120 fm. level, I think?

Capt. WILLIAMS: Yes: we expect to reach it there. We shall have another level this year.

Mr. BATTERS: Do you consider, taking the mine all through, that you are looking as well as in the previous period of the mine's history?——Capt. WILLIAMS: Yes; quite as well.

Mr. BATTERS: And you think, in spite of the qualified answer to my question as to the reserves, that you have some years' reserves before you?——Captain WILLIAMS: If you want an answer to that I may say that I believe they will continue to be as large as the ore we have taken away.

Mr. BATTERS: That is, that the reserves are as large this year as they were last?

Capt. WILLIAMS: They are larger. We have as much ore standing in the mine now as we have broken away. I have been rather afraid of the water, but that matter has now been put right.

The CHAIRMAN: When you say you have only taken half the stuff you mean only half the stuff that you have discovered?——Capt. WILLIAMS: Yes, that is so.

A SHAREHOLDER: How much ore has been broken away altogether?——The CHAIRMAN: I could hardly tell you without calculating.

Mr. HUNELL: You may take it this way, 300,000*l.* has been paid in dividends at present, and we have reserves, as far as we can see, which will produce us 300,000*l.* more.

Mr. BATTERS: At present you have only a very shallow mine; 90 fms. in depth is not much for a lode like you have, 30, 40, and even 50 ft. in width, and with no signs of falling off.——Capt. WILLIAMS: I should be sorry to have bought this big engine if I did not think so.

Mr. BATTERS: How far do you think the new engine will take you?——Capt. WILLIAMS: I should think it would take us two miles. (Laughter.)

The CHAIRMAN: There is another thing. The expense in getting the 300,000*l.* in dividends will not be so much in the future as in the past, as we spent probably from 50,000*l.* to 100,000*l.* in putting up machinery of various kinds out of the profits of the mine.

A SHAREHOLDER: Is the machinery you are putting up for treating the halvans paid for?——The CHAIRMAN: Only 100*l.* has been spent at present, and it will take about 3000*l.* more to complete it, but it is calculated that all the money will be returned in one year's working. After that you will have from 5000*l.* to 6000*l.* a year at least from the halvans, which will last many years. And you must also bear in mind that you are daily adding to the reserves, although they are not possibly so good as in the former part. Still you are adding to them, even if they are only half as good as in the past.

Mr. OLDREY: It is calculated that we shall add to them as largely as we take away from them when we get the machinery going.

The CHAIRMAN: I understand Capt. Williams to say we shall be many years using up what we have now.

Capt. WILLIAMS: If we do not discover any more we should have 20 years' work upon those halvans, and if you would relieve me from the management I should be happy to give 5000*l.* a year to be allowed to work them.

A SHAREHOLDER: We shall not take your advice, Captain Williams, we want to keep you.

Mr. GATTY: Do you think the machinery we have on the mine will carry us on?

The CHAIRMAN: We think when we complete the halvan dressing machinery we shall be pretty well done for some time; of course, there is always wear and tear to provide for.

Mr. BATTERS: I think you would interest us if you would tell us something about the dressing machinery during the past year.

Capt. WILLIAMS: There is nothing that I can add to what I have said in my report. I have had to explain all these matters several times to shareholders who have visited us.

Mr. LAVINGTON: We are dressing double the quantity of ore now at half the cost.

The CHAIRMAN: We do not employ half the number of people in the dressing department that we did some years ago. Gentlemen, there is no other business before the meeting, and if you will allow me I beg to move that a vote of thanks be given to Capt. Williams for his very able management of this mine, and for the attention which he has given to it. (Applause.) I have very great pleasure in proposing that. I have seen a great deal of Capt. Williams, and I never saw work better done in my life, and his attention to the company's affairs is beyond all praise.——A SHAREHOLDER: I second that.

The motion was carried.

Capt. WILLIAMS: I beg to thank you, gentlemen.

Mr. HUNKLL: I am sure I have great pleasure in proposing a vote of thanks to our Chairman and directors for the very able and efficient manner in which they have performed their duties. I am sure nothing can be more successful than success, and I think the success of this mine is greatly due to their very great assistance, and to the very able assistance they have received from Capt. Williams. (Hear, hear.) The fact is this, having as they have the greatest confidence in him—and I am sure the whole body of shareholders have not only the greatest confidence in Capt. Williams but also in their directors—and while this unanimity exists, and great attention is paid to the interests of the mine, we shall have no cause to complain. I am sure of this that the shareholders will participate with me in the feeling that we are deeply grateful to all. (Applause)

The motion was seconded by a SHAREHOLDER, and carried.

The CHAIRMAN: Gentlemen, on the part of my brother directors and myself I have to thank you for the kind manner in which you have received the proposition of my friend, Mr. Hunell, who certainly spoke in very flattering terms—much more so I fear than we deserve. (No, no.) As in the past we hope to give the same attention in the future as we have given in the past. The results have certainly been very satisfactory. Your vote will cheer us on to increased energies in the future.—The meeting then terminated.

PANDORA LEAD MINING COMPANY.

The statutory meeting of shareholders was held on Thursday at the offices, 8, Austinfriars,—Mr. C. J. HILL in the chair.

Mr. J. H. MURCHISON (the secretary) read the notice convening the meeting.

The CHAIRMAN said the meeting was held in conformity with the terms of the Act of Parliament, and for the purpose of explaining any matter upon which the shareholders might require explanation. The property of the Willoughby Mine had been to the satisfaction of the solicitor, and this company had been vested in the Pandora Lead Mining Company. Possession of the property had been taken, and the works originally were now being prosecuted. Operations had been somewhat retarded by the bad weather and by the want of dressing machinery, as there had been more ore raised than could be dressed. They had been selling 30 tons of ore bi-monthly, and 30 tons of blende bi-monthly, and making a sale of 30 tons of ore and blende each month, and this was nearly sufficient to pay all the costs. Applications were still coming in for the shares, of which there were only a limited number remaining, for it should be understood that the 2*l.* shares included a bonus share, so that virtually the 2*l.* was for two shares.

The following report from the agent having been taken as received, the proceedings terminated:—

March 20.—Pyne's Engine-Shaft: The 33 fm. level being driven south from this shaft, on new lode, is out 5 fms. 3 ft. The lode is close, and very spare for driving, producing a mixture of lead and blende, but not sufficient to value. This level has yet to be driven 5 fms., to be under the first ore ground passed through in driving the 23 south, and 15 fms. to reach the first strong run of ore met with in that level. But as the runs of ore on this lode show a slight dip to the north, we should meet them sooner at the 33 than at the 23. Basing our calculations on this, we are daily looking for an improvement in the lode, and also let down the water, and thus be able to commence sinking winzes below the 23 in the ore ground. A cross-cut has been started east from the bottom of Pyne's shaft to cut Goddard's lode. This is out 4 fms. We have about 14 fms. yet to drive to reach the lode, which will take from four to five months to accomplish. In driving the 23 cross-cut we met with a joint which let down the water from Goddard's lode. Should we find the same at the 33 we shall be able to begin working on this lode below the 23. The 23 fm. level going south is still in a wide lode. The part carried by driving is yielding ¼ ton of lead and 15 cwts. of blende per fathom; where the lode is being stripped down, 5 fms. behind the end, it is worth for width of lode 1 ton of lead and the same of blende per fathom. The level has been driven 10 fms. in this course of ore. This is the second run of ore passed through in this level, and is similar in form to the first one, being formed by and at a sudden bend in the footwall of the lode, but very different in its character; with the first course of ore we had little but lead, blende, and slate rock. Here we have from 8 to 9 ft. of a lode composed chiefly of lead and blende, with grit and lime-spar mixed throughout, very similar to some ground we have in Goddard's lode. No. 1 stope in back of this level is worth 10 cwts. of lead and the same of blende per fathom. I may here remark that the ground is whole above and below where these runs occur.

Goddard's Lode: The 23 end south extends 5 fms. beyond the line of No. 4 shaft, and is at present in one of the hard unproductive bars of ground we find intervening between the runs of ore on this lode. The stope in back of this level, north of No. 3 shaft, is worth 1 ton of lead and 15 cwts. of blende per fathom; this stope is being worked on the second run of ore going down on this lode. The first being 10 fms. south of cross-cut at Pyne's shaft, and it is 20 fms. south of that; we cannot touch either of these runs below the 23 till the 33 cross cut has drained the lode of water. The 13 extends 15 fms. beyond No. 4 shaft, and is being continued to communicate with No. 5 shaft; the lode for some distance along this level has produced a little ore, but not enough to value, and the lode is so much split up that we cannot expect much ore till we see it more regular in its bearing, and better defined. We are anxious to see our levels reach the No. 2 east and west lode which should cross the 13 20 fms. south of the present end. The stope below the 13, north of No. 4 winze, is worth 15 cwts. of lead and the same of blende per fathom; this course of ore made south of the winze at the 13, we now find that instead of going down in its regular course it has taken a throw to the north of the winze. We are making a trial by cross cutting east from this level on the cross-course north of No. 1 shaft, but nothing to note has appeared yet.

The 6 fm. level is through to the No. 5 shaft. A stope below this level is worth 10 cwt. of lead and the same of blende. The No. 5 shaft, which is now in course of sinking, is down 2 fms. below the 6 fm. level. The lode there is much split and disordered, still the ground is of a bearing character, and should the lode become more settled, I have no doubt we shall have it more productive.—Pitwork: From the increased quantity of water we must mostly have to pump from the 33. We have new pumps, plunger, and its necessary fittings, now in hand at the foundry; when these are delivered we shall at once arrange the pitwork according to present requirements.—Surface: The two water-wheels, with pumping, drawing, and dressing machinery attached, are in good working order, and the reservoirs all full of water, and a considerable stock also in the Bod Lake. With the exception of the washing away of stuff from the top part of the big reservoir embankment we have suffered no damages to speak of, either from the storms or floods.—Dressing-floors: As before intimated, we require to enlarge and add to our present appliances. This we shall attend to in due course. By the remarks I have made throughout this report I think you will be able clearly to understand the position and prospects of the mine, which I consider was never so good at any time of its existence.—H. NOTTINGHAM. ——

PENSTRUTHAL CONSOLS TIN AND COPPER MINING CO.

The general meeting of shareholders was held at the mine, near Redruth, on Friday,—Mr. MATTHEW GREENE in the chair.

The report of the manager (Capt. Wm. Teague) having been read, the balance-sheet and profit and loss account to Dec. 31, showing a profit on the copper and tin raised of 1104*l.* 14*s.* 7*d.*, was explained.

The CHAIRMAN, in presenting the report and accounts to the meeting, said—I visited the mine yesterday, and in company with Capt. Teague, Mr. Adam Murray, and others, went underground, and made it my business seriously and carefully to go through the workings. We spent some considerable time there, and I must say I was very much gratified with what Capt. Teague had to show us. It is my humble opinion that we are entering a great course of copper.

Mr. R. R. BROAD, J.P.: We have been labouring under great depression in the county for some three years now. Tin is down at less than half its former price, and the majority of tin mines have had to close or make calls, being unable to face the present crisis. In the case of Penstruthal, we are happily situated in having money in hand to fall back upon. With regard to the discovery of copper made last year, it is a striking feature that the adjoining mine, Tresavean, made copper at the same depth, and has been one of the most productive mines in the county. Had such specimens of ore as I see before me now been discovered before the present depression in the county our shares would have been worth 5*l.* or 6*l.* a share. I have never seen finer in all the course of my life.

The CHAIRMAN: I think, gentlemen, that Mr. Adam Murray, one of our directors, who accompanied us underground yesterday, and who has known the district for years, could give us a little information respecting it.

Mr. ADAM MURRAY, F.G.S.: I do not know that I could give much more information than you already know. Tresavean Mine I knew when I was a boy, and remember measuring the lode there 18 ft. wide. I do not think sufficient stress has been laid upon the fact that you are only just passing through the upshoot from the mass of the ore below. Capt. Teague, with his usual great caution, has not said very much on that point, but I think if you see similar indications in mines identically situated you are warranted in expecting similar results. I was underground here with Capt. Teague some months ago, and the 58 fm. level was just penetrating the copper. These stones are merely oxides of copper, not yellow copper. These are but the "blossom" of the ore, what the French call *chapeau de fer*—the cap of the mineral. The oxides in Gwennap are always the forerunner of ore. We have all the requisite indications, and are down to a depth now where we may expect to strike into the yellow or permanent copper. I am pleased to see the great amount of work that has been accomplished underground since my last visit, and it gives me much pleasure to confirm Capt. Teague's report.

Capt. TEAGUE: I certainly think that in opening up the lode all that we may naturally expect will happen. I do not know of any young mine in the county that can equal Penstruthal—much less surpass it. The character of the lode is everything that possibly can be desired. We have already sold 1000*l.* worth of copper from this lode at the present depth, and from the specimens on the table you can see its nature. Now, that certainly is not there by itself. We must push out our levels, and go down deeper, and we shall then find, I think, a mine equal to any in the district. There is one thing I see our Chairman and Mr. Murray have omitted to mention, and which I did not name in my report, and that is the bottom level, the 72, is as dry as the floor of this room, whilst in the shaft the water is bubbling up. It is so dry that the men have to go back to the shaft to get water for boring purposes. What does that tell us? Something very important—that we have a large porous lode under us traversing the sett that is draining the bottom of the mine.

Capt. MICHELL: There can be no doubt that this is going to lead to a great course of ore. You need not go so far as Tresavean for a comparison. Why, close to the very ground on which this house is built is the lode which gave in one "two months" 17,000*l.* profit, and in one year 60,000*l.* in dividends. With such ore as you have coming from the lower levels at Highburrow, four or five years ago people would have been mad for shares.

Capt. POLKINGHORNE: I have been a miner all my life, and formerly worked in the Basset mines, where I have broken hundreds of tons of copper, but during the whole of that time never did I see prettier stuff than we have in the Penstruthal. In my opinion nothing can fail us in having a great mine here. All we want is to go a little lower down.

The CHAIRMAN: Where was the place you said the men broke the large amount of copper?——Capt. POLKINGHORNE: 16 fms. east of Highburrow shaft, in the back of the 58. The ore has gone away east. In another place a man and boy on tribute at 8*s.* in 1*l.* broke 70*l.* worth of ore in two months.

Capt. MICHELL: A few more pitches like that will soon make a good paying mine. The pitches would be let at less rates when you get deeper.

On the motion of Mr. BROAD, seconded by Mr. ADAM BROWN, the retiring directors were unanimously re elected.

Messrs. Johnstone, Cooper, Wintle, and Co. were also re-elected auditors.

Votes of thanks to the Chairman, directors, and manager, Capt. Teague, terminated the business of the meeting.

EAST POOL MINING COMPANY.

A three-monthly meeting of adventurers was held at the mine, on Monday, Mr. R. R. BROAD, of Falmouth, presiding. The accounts showed a profit on the three months' working of 608*l.*; adding to this the balance from last account of 62*l.*, made the available balance 677*l.* 2s. 11d. It was proposed to divide 2s. per share, which would leave a balance to be carried to next account of 37*l.* 2s. 11d. The agents' report stated:—

March 19.—Great Lode: The engine-shaft, sinking below the 180, is down 7¼ fms. The sump winze is down 13½ fms. below the 180. We are now cutting a plat at the 190, which we shall finish in a few days from this time. We are putting in a skip-road from the 190 to the 140, which will be completed this week. The 180 is driven east of engine-shaft 50 fms., and is worth for tin 15*l.* per fm. The 180 is driven west of cross-course 20 fms., and is worth for tin 8*l.* per fathom. We have four stopes working in the back of the 180—three north-east for tin 17*l.* per fathom each stope, and one west worth 9*l.* per fathom. The cross-cut is driven south at this level 24 fms. to intersect engine and south lodes. We have one stope working in the back of the 170 worth for tin 10*l.* per fathom. At the 170, east of engine-shaft, we have driven a cross-cut south 9 fms., 5 fms. of which passed through a productive lode; the other 4 fms. are in a horse of granite. We hope here to cut the engine lode soon. The stope in the bottom of the 160, on the eastern ground is worth for tin 12*l.* per fathom.

Engine Lode: The 170 is driven west on this lode 33 fms.; at this point we have reached the cross-course, and now driving through it for the purpose of communicating with the south lode at this level. We have one stope working in the back of the 160 worth for tin 14*l.* per fathom. At the 140 the cross-cut is driven south 25 fms.; here we hope soon to intersect the south or flat lode.

South Lode: The 180 is driven east of cross-cut 37 fms., and is worth for tin 15*l.* per fathom. We have one stope in the back of this level worth for tin 15*l.* per fathom. The 150 is driven west of eastern cross-course 26 fms., and is worth for tin 8*l.* per fathom. The 150 is driven east of long winze 35 fms., and is worth for tin and copper 16*l.* per fathom. We have one stope in the back of this level worth for tin and copper 14*l.* per fathom. There are two stopes working in the bottom of the 150 worth for tin and copper 14*l.* per fathom each stope. There are four stopes working in the back and bottom of the 130 worth on an average for tin and copper 10*l.* per fathom each stope. The 120 is driven east 26 fms., and is worth for tin 8*l.* per fathom. We have one stope in the bottom of this level worth 10*l.* per fathom. Some of the additional ground cut has been set upon tribute.—JOHN MAYNARD (manager), CHARLES BISHOP, WM. TIPPETT (agents).

The CHAIRMAN congratulated the shareholders upon the fact that the mine was in as fair a position as ever it stood, although if they had met that day and had had no dividend to declare it would be no extraordinary event when they considered the position the mining interest of Cornwall had been in during the past eight or nine weeks. The mine had, in common with others, suffered from an influx of water either from natural causes or from water let in by other mines. There had been an influx of water from North Crofty, which was the cause of a week's cessation from work—a matter of considerable importance to them. By the great exertions of the manager and agents the mine had, however, succeeded in maintaining its reputation in such a manner as to give the shareholders the utmost satisfaction. He hoped the time would not be far distant when they would be able to work with greater effect than they did at present. They only wanted a continuance of peace, which would result in commercial enterprise being re-established, and the metallic values of the kingdom would certainly rise. It was better to be hopeful than desponding, and he was in hopes that before long they would be able to meet every eight or nine weeks and declare a better profit. (Hear, hear.)——Captain MAYNARD pointed out that they were shut out from their best ground for five weeks.

The CHAIRMAN expressed his regret at the absence of Mr. Dennis, the largest shareholder in the mine, but said he had received the following telegram from that gentleman:—"Regret cannot be present at meeting to day, but whether you are able to declare a dividend or not I feel satisfied the best has been done. Request, therefore, the Chairman to propose a vote of thanks to the manager and agents for their energy in coping so satisfactorily with the water."——The report and statement of accounts having been adopted,

The CHAIRMAN proposed, and Mr. HARRISS seconded, a vote of thanks to the manager and agents for their zeal, ability, and indefatigable energy. This was unanimously carried, and Capts. Maynard, Bishop, and Tippett returned thanks. The former remarked that notwithstanding all the difficulties they had had to contend with, the mine was never in a more satisfactory condition than it was at the present time.—*Western Daily Mercury.*

COTTON POWDER COMPANY.

The annual general meeting of shareholders was held at the offices of the company, Queen Anne's Gate, Westminster, on Thursday,

Mr. J. RAMSAY L'AMY in the chair.

Mr. R. M. GARDINER (managing director) read the notice convening the meeting. The report of the directors was taken as read.

The CHAIRMAN said: Gentlemen: You will notice that the accounts from the re-construction of this company—that is from Nov. 10, 1875 to Dec. 31, 1876—are included in the report and balance-sheet now in your hands. I have no doubt you have all examined them, and I hope you will agree with the directors in thinking that a substantial progress has been made during that time in the affairs of the company. (Hear, hear.) There are some points in the balance-sheet which appear to me difficult of comprehension without some explanation, which I will proceed to offer. First, in regard to the purchase account, amounting to 17,741*l.* 3s. 10d. This purchase account is the price paid by this new company for the old company when they took over its shares, its debts, and its credits, and it is the balance which remains standing under this head that accounts for the 17,741*l.* Under the head of buildings and machinery there is a sum of 14,545*l.* 10s. 6d., which you might have difficulty in understanding and in discriminating between the two but for this explanation, which I trust will make it perfectly clear. You will remember that the whole of the accounts are made out for 14 months, not a year. Now, if you will look at the trading account you will see a very considerable increase there compared with the accounts of the old company. It appears that in the old company the only trading account that was issued was for last year, and this showed a debit balance of 2129*l.* In the trading account of the new company for 14 months, to the end of December last, there appears a credit balance of 4772*l.* 5s. 5d. That is satisfactory certainly. The powder sold for these 14 months amounted to 128,994 lbs., or equal to 64½ tons. At the present time I am informed that the company are manufacturing for orders on hand at the rate of 9 tons per month. When we compare this 9 tons per month with the 64½ tons made in the 14 months above referred to, it shows a very substantial increase, and a progress which cannot fail to be satisfactory to the shareholders. (Hear, hear.) We must, of course, recollect that any new product which is brought into the market, and which has to contend with industries already established, must expect difficulties such as the cotton powder or tonite had to meet with, but which difficulties, I think, are gradually decreasing as the value, the power, and the safety of the powder are becoming known to the mining community. There was, I regret to say, an unfortunate accident which occurred at the company's works—the fall of a chimney, which caused damage to the place, loss of life, family misery among the relatives of the people who lost their lives, and rendered the stoppage of the works necessary for about six weeks. While this could not, of course, be helped, it had the effect of diminishing to a certain extent the amount of work executed, and the consequent profit that we should otherwise have realised. The chimney has been since re-built, and though there are some little flaws in it we have no fear of remedying these very shortly. The great anxiety of the board is that they may be enabled at a comparatively small cost to provide such additional plant and machinery to double, or at all events increase very much, the present output of powder. The extra trading expense for doing this would, of course, be considerable, but the output would bear a relative proportion to that additional outlay, while the expenses of the staff, offices, &c., here would remain the same. Having then entered into full particulars of the several economies which have been and are still being introduced into all branches of the company's business, such as the utilisation of waste products and the manufacture of materials which are largely used in the various processes at the works, he (the Chairman) then moved "That the report be adopted, and that the balance-sheet laid before the meeting this day be duly received and passed."

Mr. W. H. NICHOLSON begged to second the resolution.

The CHAIRMAN said: No doubt there are many points in the report and accounts to which gentlemen here present may desire to refer to and ask questions thereon. If there are any such I shall be happy to answer them to the best of my ability.

No one rising to address the meeting, the resolution was put and carried unanimously.

Col. ELLERMAN had much pleasure in proposing that Mr. J. Ramsay L'Amy be re-elected a director of the company.

Mr. W. S. WESTON in seconding the motion referred to the able and indefatigable services rendered for the Chairman.

The resolution was put and carried.

Col. ELLERMAN next proposed that Lord Frederic Kerr be re-elected a director.

This on being seconded by Mr. LAWRENCE was put and carried.

Mr. WESTON proposed, Mr. GARDINER seconded, and it was resolved that Messrs. Smart, Snell, and Co. be re-appointed auditors to the company.

Mr. NICHOLSON said, before the meeting separates, gentlemen, perhaps you will allow me as an original shareholder in the company, to propose a vote of thanks to the Chairman and the other gentlemen composing our board of directors. Of course we, the proprietors, should have been all the better pleased if the time had arrived when we were to receive some return upon the money we have invested in this concern. I am not only hopeful, but to a degree confident, that by this time 12 months we shall find our affairs in a highly prosperous condition, not but what I think the progress we have made in the last 14 months perfectly satisfactory. My confidence in the future is, to a great extent, based upon the character of our directorate. It is not a flashy thing got up to attract the public, but is composed of sound substantial men who exert themselves to promote our interest in every possible way. (Hear, hear.) Thus, I feel the utmost confidence in the management, and I hope the other proprietors do so too. I think, gentlemen, we should be wanting in our duty were we to separate without expressing our thanks to the directors for the services they have rendered us in the past year.

Mr. WESTON had pleasure in seconding the resolution, which was then put, and passed unanimously.

The CHAIRMAN said: Gentlemen, in my own name and that of the board I beg to return you our sincere thanks for this recognition of the services we render in your behalf. I do not know whether we shall be able to give you a dividend this time next year, but of this you may rest assured—we shall do so if we can. I also beg to thank you for re electing me a director of this company.

Lord F. KERR desired also to tender his acknowledgements.

BILSON AND CRUMP MEADOW COLLIERIES COMPANY.

An extraordinary general meeting of shareholders was held at the Cannon-street Hotel, yesterday,

Mr. TOM GOOLD, Newnham, Gloucestershire, in the chair.

Mr. JOHN S. FEAST (the secretary) read the notice calling the meeting.

The CHAIRMAN said the first duty was the election of an auditor. Last year, when Mr. Clark was appointed auditor, a question was raised whether Mr. Clark was eligible for the position of auditor, as the company rented offices under him, and after the meeting Mr. Crisp, solicitor, decided that Mr. Clark was not eligible; therefore, the directors engaged Messrs. Denning, Smith, and Co. to audit the accounts, and it was for the shareholders now to appoint auditors.

Mr. NORTHCOTE moved that Messrs. Denning, Smith, and Co. be appointed auditors for the year.——Mr. NEW seconded the resolution, which was put, and carried unanimously.

The business of the third annual general meeting was then proceeded with.

The CHAIRMAN said the directors had complied with the request of Mr. MacLean at the last meeting, and on the present occasion the names of the directors and officers were given at the head of the report. He regretted to say that the directors were not in a position to present so favourable a report as for the year 1875, and, therefore, they were not able to recommend the declaration of a dividend further than had already been paid. Down to the end of the month of April matters did not look very discouraging in the Forest of Dean, and the directors entertained hopes that fairly good results would be realised. Even down to August or the end of September the directors imagined that they would be able to show a good balance of profit, but the last three months dashed their hopes, and the trade, which had been exceptionally bad all the year, became worse and worse, and it seemed that the merchants and manufacturers' yards were always full, and that people were burning no coal. It was almost impossible to sell house coal at any price during the last three months. He had been acquainted with the Forest of Dean coal trade for 35 years, and his father was engaged in it before him; he himself was brought up in the midst of it, and knew the trade there as well as any man living, and throughout all that lengthened period he could most confidently say he had never known such depression as had existed during the last twelve months in the coal trade of the district. Only those gentlemen who were practically acquainted with the working of profit according as the output was 16,000 or 18,000 tons more or less—and he referred to that amount as it was the difference between the output of 1875 and 1876—only those gentlemen knew what a difference it made on the profits; not only did they lose on the profit upon the 18,000 tons, but the expenses were to be spread over a smaller quantity, thus making the expense per ton larger. Again, at the commencement of the year they had to submit to a reduction of a shilling per ton in the price, whilst there was a reduction of only 5 per cent in the miners' wages. Last year the coalmasters of the Forest of Dean determined to get rid of the sliding scale. In February last the masters obtained a reduction of 10 per cent. in the wages of the men, whilst coal was reduced only 1s. per ton, therefore the position of the company was somewhat improved in that respect. The year 1876 was the worst he had ever known in the Forest of Dean, and he believed it arose entirely from the depression of trade and the extreme mildness of the weather, which he believed were quite unparalleled in the memory of any living man. With regard to the future, a great deal depended upon whether there was peace or war, or a depression or a revival of trade. If the present uncertainty in continental affairs continued he did not look for any better state of trade; and he did not anticipate any revival until things were more settled; and until things were more settled they could not look great improvement in the price of coals. There were now only three directors, and in order to save expense, and as trade was dull at present, the directors had not thought it necessary to increase the number. However, that was a question which was entirely in the hands of the shareholders. He greatly regretted that the proposed purchase by this company of the Foxe's Bridge and Central Collieries was not carried out; 8000 out of the 10,000 shares which were to be exchanged approved the scheme; but as only 1247 shares were subscribed for the deposits were returned. He did all he could to carry it through, and was willing to subscribe 23,000*l.* worth of shares if it was carried out; but what surprised him was the extreme apathy manifested by the large shareholders in Bilson, with respect to taking up new shares. An arrangement had been made with the Foxe's Bridge and Central Colliery for acting under a management and an equal division of expenses. This might appear to be open to objection, having regard to the fact that the collieries might be deemed rival schemes; but if they knew and appreciated all the circumstances they would agree that the arrangement was one which would be for the mutual interest of all parties, and no real difficulty or injury could arise therefrom. As regarded the guarantee, he did not know that he could add much to what was stated in the report; the guarantor had been taken away by the hand of death, and his affairs had been left in the hands of executors and trustees appointed for that purpose. However, the matter was before the courts of law, where it would have to be decided. Since the report was issued 400*l.* more of the debentures had been taken up, making an amount of 4000*l.* in hand still out of 5000*l.* Under the terms of the debentures they became payable on Jan. 1, 1880, and he thought a reserve should be formed for the purpose of dealing with those debentures, even if it entrenched upon the guarantee. A shareholder had suggested the formation of a sinking fund of 2 per cent. taking from the surplus earnings, and half of any surplus after 10 per cent. was paid to the shareholders. If some such scheme as that could be adopted no doubt at the end of the year they could get upon a mortgage of the property 10,000*l.* or 15,000*l.*, or even more, for a limited period at 5 per cent., or some rate lower than was now paid on the debentures. For his own part he had not lost confidence in the company; he held 1259 shares, and he had increased his holding, and he stated deliberately that he would not sell his shares at 1s. below par. Of course they must expect fluctuations in the coal trade; he had seen them before, and he expected to see them again, and the company could scarcely expect to be exempt from that to which other trading concerns were subjected. When there was a revival of trade in the country they would see an improvement in the coal trade of the Forest of Dean. This company had done more, with one or two exceptions, than any other firm in the Forest of Dean, and he read an extract from a report of the South Wales Mineral Railway Company, in which it was stated that the coal trade was in a depressed state, and all the collieries on the line, with the exception of two or three, had been closed during the past year, and the receipts of the railway had been diminished. Notwithstanding the great depression of trade, the company had made a profit of 2300*l.* in the 12 months. In conclusion, the Chairman moved the adoption of the report and accounts.——Mr. G. R. BENNETT seconded the resolution.

Some discussion ensued on the question of the guarantee, but as the matter is *sub judice*, it would be out of place to refer to the matter at any length.

The SOLICITOR said he hoped the case would come on for hearing before the long vacation. As regarded that guarantee, there was was the personal liability of Mr. Alfred Goold, and the 10,000*l.* now in the Gloucestershire Bank, so there was amply sufficient to pay the guarantee when the case was decided. As a matter of fact the vendors guaranteed interest at 5 per cent. for five years.

In the course of a discussion which ensued, Mr. RUSSELL EVANS thought the report should be received, but not adopted, pending the hearing of the case. He certainly understood that there was an absolute guarantee of 10 per cent. per annum. He thought the circumstances connected with the starting of the company should be investigated by a small committee.

After some further discussion, the CHAIRMAN replied to some remarks which were made, and in the end the report and accounts were adopted, with the addition of the words "that they be so received and adopted without prejudice to the pending questions between the company and the guarantors.

On the motion of Mr. ROBERT PARNALL, seconded by Mr. R. EVANS, the Chairman, Mr. T. Goold, was re-elected.

A question was raised as to the desirability of increasing the number of directors, but the general feeling seemed to be that it was better to allow matters to remain as they are for the present.

Messrs. Curtis, Jenkins, and Co., of Bristol, were appointed auditors for the ensuing year.

A vote of thanks to the Chairman and directors terminated the proceedings.

NEW CONSOLS SILVER AND ARSENIC WORKS.—An extraordinary general meeting of shareholders was held yesterday, at 1, Queen Victoria-street, Sir James Anderson in the chair. The proceedings were of a satisfactory character. We hold over a full report until our next issue.

MINING ASSOCIATION.—At the general meeting of shareholders, held on Monday, at the offices of the company, Austinfriars (Mr. J. W. Williamson in the chair), the following resolutions were passed:—"That the directors' report and accounts be received and adopted; that Mr. Thomas Staunton be re-elected director of the company; and that Messrs. Brandt, Stansfield, and Co. be re-elected auditors, at a remuneration of 5*l.* 5s.

AMMONIA IN STEEL.—Ammonia is a compound of one equivalent of nitrogen and three of hydrogen; if a fourth of the latter be added the result, which is purely hypothetical, is called ammonium, and considered a metal. In a paper addressed to the Academy of Sciences M.P. Regnard describes certain phenomena that occurred in his presence in a steel foundry near Paris, which possessed a furnace on the Ponsard system. It was in the lingots cast from this that our author discovered free ammonia under the following circumstances:—The workmen were breaking up these lingots in order to charge some crucibles with the fragments, when, taking up one of the latter in order to examine the fracture, M. Regnard was struck with a strong smell of ammonia issuing from it. He immediately caused some more lingots to be broken, and the singular smell occurred again and again, accompanied, moreover, by a hissing noise easily perceptible by holding the fragment to the ear. Attributing this noise to an evolution of gas, he had the fractures brushed over with soap and water. This caused the formation of froth composed of thousands of microscopical bubbles, the aggregate bulk of which sometimes exceeded a cubic centimetre. The experiment was renewed very often with other lingots cast from time to time, when the following observations were made:—1, the evolution of gas and the smell of ammonia co-existed, and seemed in direct connection with each other as to intensity: 2, blistered and soft steel never behaved so; 3, the appearance of the fracture of the lingots evolving the gas was always crystalline, varying slightly from the circumference to the centre; 4, annealed lingots never evolved any gas. M. Regnard then proceeded to collect a sufficient quantity of this gas in order to analyse it, and found it to consist of hydrogen with a small quantum of acetyline in it. M. Regnard suggests that perhaps hydrogen and nitrogen, dissolved in the liquid metal and imprisoned therein by the sudden cooling in the moulds, had combined to form the radical ammonium, which had formed an alloy with the iron.

LLAN GAN LEAD MINING COMPANY.

The directors of this company—Messrs. Henry Wright (chairman), George Smith (deputy-chairman), F. Burt, and S. Walker—paid an official visit to this mine on the 16th inst., where they were received by Mr. A. Walton, the company's consulting engineer, Mr. George King Pattern, secretary, and Capt. T. Wasley, the manager. The directors descended the shaft and inspected the various levels, workings, and underground operations, after which they proceeded to examine the engine, crusher, and machinery, all of which were working most satisfactorily. After making a most thorough examination the directors adjourned to the company's offices, when Captain Wasley presented the following report:—

March 16.—In meeting you on the occasion of this your official visit I beg to submit the following report. I shall, however, omit many details, as the work done during the past few months is such as is usual in the preparation for and erection of machinery.—Machinery: A powerful Cornish engine, with pumps, &c., and a crusher, have been provided and erected, together with the necessary buildings, &c., and are working most satisfactorily.—Dressing Floors: Owing to the unprecedented bad weather I have been considerably delayed with the outdoor work. I am, however, now progressing with the dressing-floors, which I desire to be constructed on the best principles, having due regard both to economy and dispatch.

Engine-Shaft: This is now 11 fms. below the surface, and the sinking is carried on both night and day. The pitwork is fixed, and all is in good working order. In sinking the shaft we met with a splendid lode underlying north, and which will form a junction with Wright's lode at 7 to 8 fms. further in depth. At this junction we expect to meet with a large deposit of lead. It is intended to sink the shaft to a depth of 17 fms., where cross-cuts will be driven north and south to intersect the various lodes, after which levels will be driven on the vein.

Wright's Shaft and Lode: The lode is large and masterly. The shaft is now down 11 fms., and levels have been commenced east and west. The east level is looking well, and has been driven about 5 fms. through a good lode that will produce about 2 tons per fathom. By continuing this level a few fathoms we shall form a junction with the caunter lode, at which point a large body of lead may be confidently looked for. The west level we have driven about 2 fms. The lode is large, and will produce about 1 ton per fathom, and is improving as we extend the level. The levels have been and are still opening up some good lead ground that can easily be taken away when required, and will pay well.

Old Engine Shaft: We have commenced driving the 10 fm. level west, which will yield 2 tons per fathom. In the various workings hitherto mentioned our operations are confined for the present to the points dealt with, and will be until the new engine (or main) shaft is down to the required depth, when the whole of the lodes will be worked.—Smith's Shaft: This has been sunk 10 fms. through a lode 3 to 4 ft. wide, of a very promising character, and yielding about 1 ton of lead per fathom.—Burt's Lode: The shaft is about 4 fms. deep, to which point and for a few fathoms in length the ancients have stoped, and no doubt must have had a rich lode, but by sinking this shaft a few fathoms through the outcrop of the Hillias we may expect a good body of lead, as such a change always enriches the lode.—Parker's Lode: This is very large, and producing lead stuff from the surface that will pay to be taken away, as it can be worked by open cutting.

Ore Ready for the Crusher: There are about 60 to 70 tons of picked ore, and between 500 and 600 tons on the bank undressed.

Lead: I hope from our present jiggers, &c., to be able to send to market from 20 to 30 tons per month until the dressing-floors are completed, when the quantity will be considerably increased. To-morrow I shall commence shipping about 11 tons for the next sales.

Barytes: In addition to the lead the lodes contain large quantities of barytes, which alone is sufficient to warrant the prosecution of the mine in depth, as it will find profitable markets.

Conclusion: I beg to express my continued high opinion of the mine. The lodes are masterly, being of great width and strength, representing the elements of success, and they will, no doubt, in depth lead to large and extensive runs of lead. I congratulate the company on having such a property.—T. WASLEY, Manager.

SPECIAL REPORT ON WEST CRAVEN MOOR LEAD MINE BY MR. JOHN LEAN, M.E.

The above-named mine I inspected on the 7th inst., and the following are the remarks which I have to make thereon:—The eastern boundary of this sett forms the western one of East Craven Moor, so that the two mines adjoin each other. The surface of the sett, like that of the adjoining one, is furrowed by immense chasms and hollows formed by the ancients, and which indicate the presence of a number of lodes, from which they, doubtless, extracted a vast amount of wealth. There is an excellent adit taken up from the foot of the hill in the valley, and extended into it on the Black Hill lode 650 fms., or 1300 yards. For a considerable distance from the entrance it is secured by permanent arched masonry, and it has a good and substantial tramroad, with strong, well made iron wagons, which will each contain over a ton of ore. The lode in this level throughout is from 4 to 5 ft. in width, retaining the same to the present end. Throughout the part opened by the ancients the back of the level has been most extensively worked away, giving an infallible proof that it must have been rich. At 570 fms. from the entrance the present company resumed the driving of this adit, and just beyond this place the first, or westernmost stope, has recently been begun. It has been worked but a few feet above the back of the level, and will yield 10 cwts. of ore to the fathom. This stope is 80 fms. behind the end. At a point 25 fms. behind the end is the second stope, worked just above the back of the level, yielding 15 cwts. of ore per fm. Behind the end 7 or 8 fms. there is a branch, an off shoot of the lode, bearing off to the south of east, which will give 15 cwts. of ore to the fathom. Such offshoots are a usual occurrence in metallic lodes. The end itself, and the bottom for 8 fms. behind it, will produce 1 ton of ore to the fathom, but close to this on the west, or at a little more distance from the end, the captain reports that for a limited length there is a branch of solid galena—sulphuret of lead—gone down in the bottom of the level, but a pile of stuff on the bottom prevented my seeing it. Most desirable would it be to open at this place to a deeper level, and in order to enable you to sink below the adit I would suggest that a new shaft for pumping be sunk from surface to come down on this spot. The depth of the shaft would be (say) 35 fms., and probably the sinking would be facilitated by having to pass through the old excavations. At a point—(say) 560 fms. to the east of the mouth of the adit—a cross-cut south is being driven, now in 50 fms. In this drivage several branches have been crossed, but as yet nothing to which any present value can be attached. They, however, daily expect to reach a lode. There are two shafts—one shaft and west shaft, 47 fms. apart—both sunk on a lode to the depth of 20 fms. from surface. West shaft (the westernmost one) is about 200 fms. in advance of the adit.

From west shaft at the depth of 16 fms. a level has recently been driven west 9 fms.; here they met with a flat—a kind of slide—on which they are now working, and whence has been extracted several tons of ore. At the bottom of this shaft 20 fms. from surface a level has been driven west 40 fms., and another opposite to it, at the same level east, from shaft to shaft, effecting a communication between them by which the mine is thoroughly ventilated. In the back of this level between the two shafts two stopes are being worked; the westernmost one, up 9 fms. above the back of the level, yields 18 cwts. of ore per fathom, the other, up 12 fms., yields 12 cwts. of ore per fathom. From the bottom of the east shaft a short cross-cut south has intersected No. 2 lode, on which has been driven a level west 16 fms., and another east 22 fms.; the eastern end yields from 18 to 20 cwts. of ore per fathom. In the back of both of these levels, east and west of the cross-cut, they are working a stope; the one to the west of the cross-cut is up 6 ft., and produces 25 cwts. of ore per fathom, and the eastern one, 6 fms. to the east of the cross-cut, up 6 ft., yields as the other—25 cwts. of ore per fathom. In 15 fms. continuation of the cross-cut south from No. 2 lode they intersected lode No. 3, on which they have driven west 4 fms.; this end yields 12 cwts. of ore per fathom; here they have just begun to drive east also, the cross-cut still continuing, and has been extended 4 fathoms south from the last-mentioned lode—No. 3: You have, then, in West Craven Moor the following ore-producing places—present producing, independently of the prospects—the western stope in back of adit 10 cwts. per fathom. The eastern stope in back of the adit 15 cwts. per fathom. The adit end 20 cwts. per fathom. Gone down in bottom of adit 20 cwts. per fathom: off-shoot branch in the side of adit 15 cwts. per fathom. The western stope on No. 1 lode 18 cwts. per fathom. The eastern stope on No. 1 lode 12 cwts. per fm. The eastern end on No. 2 lode 19 cwts. per fathom. The eastern stope on No. 2 lode 25 cwts. per fathom. The western stope on No. 2 lode 25 cwts. per fathom. The western end on No. 3 lode 12 cwts. per fathom. Thus you have in the aggregate 191 cwts. per fathom, or 9 tons 11 cwts., or a money value in the aggregate of sale at 130*l.* per fathom. It will be seen that the ore-producing places are 11 in number, and that the aggregate produce is 191 cwts.—191 cwts. ÷ 11 = 17 1-5th cwts. as the average of each place, or a money value of at least 12*l.* This sett, like its neighbour, is a most interesting piece of mining ground, possessing all the favourable characteristics seen in lead mines in a formation of limestone. The nature and character of both ground and lodes in this mine differ in nothing from those of East Craven Moor. Looking at the fact that no fewer than 11 places are now in ore, producing in the aggregate nearly 19 tons per fathom, the Blackhill lode retaining its size and ore yielding qualities up to the present end, that they are daily expecting to reach another lode in the cross-cut south from the adit, that you have infallible evidences of the abundant riches which the ancients must have obtained from near the surface, and which in all probability will be found to continue in depth. I say that looking at these facts and probabilities I see no reason why this mine, if vigorously and economically prosecuted, should not prove to be a most successful and profitable enterprise.

QUEENSLAND GOLD.—There were 170,000 ozs. of gold shipped at Cooktown in 1876, being 7000 ozs. more than in the preceding year. The total yield of gold for the year 1876 is stated at 183,000 ounces.

FOREIGN MINING AND METALLURGY.

The Haute Marne is the district in France in which the current of metallurgical transactions has been the best supported. There have been comparatively few transactions in the Nord, and the Paris market has ruled quiet. Small iron, merchants' iron, sheets, and wire have been the most in request. The revival in the demand for girders and other heavy articles has been still comparatively slight. The Champagne Forges Company has been producing a new description of iron, intended specially for the manufacture of bolts. It is stated, but the report requires confirmation, that the Italian Government is about to treat with the Cruesot Works for the delivery of armour plates to the value of no less than 1,200,000*l.* The Chatillon and Commentry Forges Company is paying an interim dividend for 1876 at the rate of 11s. 6d. per share.

The extraction of coal in Belgium has been reduced to a very low point, so that it only responds to the requirements of a comparatively small current consumption. Prices remain at a very low ebb. Stocks without being very large at present are increasing rather than otherwise, although working operations are only carried on during part of each week. There is little else to report. The colliery associations of the Centre and Mons basins have just come to an agreement with the Charleroi district as to the necessity for a canal to unite the Sambre to the Escant. There has also been equal unanimity with reference to the enlargement of the canal from Charleroi to Brussels.

From Lima we learn that the proposals made by Mr. Henry Meiggs to conclude the railways and drain the inundated mines of Cerro de Pasco have at last been accepted definitely by the Government. Engineers have already been dispatched to the Cerro to make some final surveys of the line to be built from the termination of the Oroya Railway to that famous mineral district, and work will be commenced at an early day. Mr. Meiggs is authorised to form a company with a capital of 2,500,000*l.*, on which the Government will guarantee a yearly interest of 7 per cent. pledged with the net proceeds of 200,000 tons of guano to be sold in the United States; with the revenue to be derived from the Oroya Railway over and above expenses, and an outward duty of 5 per cent. onall metals extracted from the mines. Within four years from date the works are to be completed.

A Konisberg journal states that the Railway Commissioners have received a command from high quarters to obtain the supplies of coal for the East Railway (Ostbahn) for the current year from the Silesian pits, and not, as hitherto, from England. The purpose of the order is to stem the increasing distress amongst the colliers of the district, arising from the want of employment.

The subsidence of floods, which have prevailed in several parts of France, have enabled navigations to resume their ordinary course, but the consumption of coal has not revived notwithstanding. Complaints are heard on this head as well in the Nord and the Pas-de-Calais as in the basin of the Loire. Colliery proprietors have been endeavouring to induce sugar manufacturers to conclude their contracts for the ensuing season, but the latter have shown little to do business, as the anticipate a further fall in prices. Quotations appear, however, to have reached a point at which concessions can no longer be made. The French Legislature has been devoting some attention to the establishment of new railways, both great and small. It is needless to say that this question is one of some importance to the French coal mining interest.

There has been some increase of orders in the Belgian iron trade, but these orders cannot be regarded as indicating any general revival in business, and quotations have exhibited no tendency to advance. The orders forthcoming appear to be the result of various works which are usually undertaken at this season of the year. Most warehouses have also become bare of stocks, which it is necessary to re-constitute on the approach of spring. Some industrials regard—or affect to regard—the season as completely lost, as they see nothing on the horizon which can revive business. This gloomy view of matters appears, however, to be hardly justified by the actual facts of the case. Thus. M. Malon has applied to the Belgian Legislature for a credit of 720,000*l.*, a part of that sum being intended to be applied to the purchase of railway *matériel*. M. Blondiaux, of Thy-le-Chateau, has also concluded a contract with a Brazilian railway company for the delivery of 13,000 tons of iron rails at Pernambuco. The Bochum Steelworks Company has obtained an order for 6000 tons of steel rails, required for the Saragosa, Pampeluna, and Barcelona Railway. Some 500 trucks have been ordered for the same line; 200 of these trucks are to be supplied by the Ivry-sur-Seine Railway Plant Construction Company, and the remainder by the Baccalon workshops at Bordeaux. Some of the ironwork for these trucks has been sub-let to MM. Nicaise and Delcuve, of La Louvière. A contract is about to be let at Sarrebruck for 27 goods engines and tenders. Some 50 turn-tables are also required for the Belgian State Railways.

The Paris copper market has presented a hesitating tone. Chilian in bars, with delivery at Havre, has made 76*l.* per ton; ditto ordinary descriptions, 74*l.* per ton; ditto in ingots, 77*l.* per ton; English best selected, 78*l.* per ton; and pure Corocoro minerals, 76*l.* per ton. In Germany quotations for copper have not varied, and transactions have been comparatively unimportant. Banca tin delivered at Havre or Paris has made 77*l.* 12s. per ton at Paris; Billiton and Straits, 76*l.* per ton; Australian, 75*l.* 8s. per ton; and English delivered at Havre or Rouen, 76*l.* per ton. The Rotterdam tin market has remained extremely quiet; for the most part holders of disposable tin refuse to sell at present rates, and this checks business. Disposable Billiton is held at 43¼ fl. to 43½ fl.; with delivery at the approaching sale purchases could be made at 43 fl. Disposable Billiton has been quoted at Rotterdam at 42¼ fl. The German tin markets have been tolerably firm. At Paris the quotation for French lead has been maintained at 21*l.* 4s. per ton, while lead from all other sources has declined to 21*l.* per ton. The German lead markets have not displayed any very great activity. Silesian zinc and zinc of other good marks, delivered at Havre, has made 21*l.* 16s. per ton at Paris. At Marseilles the quotation for rolled Vieille-Montagne zinc has been 20*l.* 12s. per ton. The German zinc markets have remained without much business, and prices have not materially varied.

GOLD METALLURGY BY THE WET PROCESS.—In reducing pyritous gold ores, J. O. Stewart has found a curious chemical change which is not noted in the books, and which we shall state briefly. The ore was a lot of 20 tons from Gilpin county, containing 2½ ozs. gold and 3 per cent. copper per ton, and carrying about 15 per cent. quartz. Part was roasted with the addition of 3 per cent. of sulphate of soda, and the rest by itself, all without salt, and then passed through the Hunt and Douglas process. Mr. Stewart supposed that after roasting the gold would appear in a metallic state, contaminated only with the sulphates of copper and iron, and was surprised to find that only 10 to 40 per cent. of the gold would amalgamate in the pans. Upon investigation he discovered that 60 to 90 per cent. of the gold was held in solution in the liquor as a chloride. This he precipitated with metallic copper, and was pleased to note that by the combined bath and pans he had made a saving of 95 per cent. of gold. The copper contained in the ore was worked up to 98 per cent., and we give below its chemical condition produced in the process of reduction:—Ore roasted without sulphate of soda showed of the copper 40 per cent. as sulphate, 59 per cent. as oxide, and 1 per cent. as sulphide. Ore roasted with sulphate of soda showed 60 per cent. as sulphate, 39 per cent. as oxide, and 1 per cent. as sulphide. This test shows that gold is soluble in a solution of salt, iron, and copper heated to 180° Fahr., and is one of many experiments which have proved the advantages gained by using the Hunt and Douglas process on ores containing gold, silver, and copper.—*Colorado Miner.*

HOLLOWAY'S OINTMENT AND PILLS.—Indisputable remedies for bad legs, old wounds, sores, and ulcers, if used according to instructions given with them; there is no wound, bad leg, ulcerous sore, or bad breast, however obstinate or long standing, but will yield to their healing and curative properties. Numbers of persons who have been patients in several of the large hospitals, and under the care of eminent surgeons, without deriving the slightest benefit, have been thoroughly cured by Holloway's ointment and pills. For glandular swellings, tumours, scurvy, and diseases of the skin there is no medicine that can be used with so good an effect. In fact, for removing the worst form of disease, dependent upon the condition of the blood, these medicines are irresistible.

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INCREASED VALUE OF WATER-POWER.

THE EXTRAORDINARY ADVANCE in the PRICE of COALS has DIRECTED more ATTENTION to WATER POWER, and to the BEST MANNER of APPLYING IT. For many years it has been, to a great extent, neglected and undervalued. One great objection to it has been the variable nature of most streams in these countries, having abundance of water during the winter half-year, and very little in the dry season. No kind of wheel hitherto known was able to give the proper proportion of power from the smaller quantities of water, so that it became the practice very generally to use steam entirely during the summer half of the year, letting the water go to waste. This is now completely prevented, and the full available power can be obtained from a stream at every season by using

Mac Adam's Variable Turbine.

This wheel (which is now largely in use in England, Scotland, and Ireland) is the only one yet invented which gives proportionate power from both large and small quantities of water. It can be made for using a large winter supply, and yet work with equal efficiency through all variations of quantity down to a fifth, or even less if required. It is easily coupled to a steam-engine, and, in this way always assists it by whatever amount of power the water is capable of giving, and, therefore, saves so much fuel.

This Turbine is applicable to all heights of fall. It works immersed in the tail-water, so that no part of the fall is lost, and the motion of the wheel is not affected by floods or back-water.

References to places where it is at work will be given on application to the makers—

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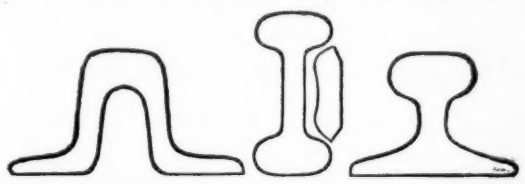
Suitable for wet or dry ground, and effective in Tropical or Polar Climates.
W. BENNETTS, having had many years experience as chief engineer with Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of its own manufacture, of best quality, and at moderate prices.
Price Lists and Sample Cards may be had on application at the above address.
LONDON OFFICE.—H. HUGHES, ESQ., 85, GRACECHURCH STREET.

SHUNTING.
3000 OF THE RAILWAY TRUCK AND CARRIAGE SHUNTER now in use.
(HESHUYSEN'S PATENT.)
For particulars and Illustrated Price List apply to—
F. G. AND W. FRANCIS,
RAILWAY SHUNTER FACTORY, FOLKESTONE.

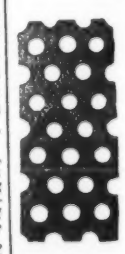
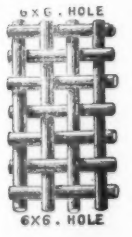
JOHN BEATSON, DERBY.

IRON AND STEEL RAILS, of all sections, from 10 to 82 lbs. per yard, new, defective, or second-hand.
POINTS AND CROSSINGS, FISH PLATES, BOLTS, NUTS, CHAIRS, AND SPIKES. LOCOMOTIVE ENGINES AND MACHINERY.
MALLEABLE AND PIG-IRON OF ALL KINDS.
Delivered at all Ports and Railway Stations in Great Britain.
A SECONDHAND SIX-WHEELED TANK LOCOMOTIVE FOR SALE.

THE TAVISTOCK IRONWORKS, ENGINEWORKS FOUNDRY, AND HAMMER MILLS,
TAVISTOCK, DEVON.
NICHOLLS MATHEWS, AND CO.,
ENGINEERS, BRASS AND IRON FOUNDERS,
BOILER MAKERS AND SMITHS.
MAKERS OF
CORNISH PUMPING, WINDING, AND STAMPING ENGINES; STEAM CAPSTANS AND CRUSHERS; WATER-WHEELS; PUMP-WORK; SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY DESCRIPTION.
Also of SPUR, MORTICE, MITRE, BEVIL, and other WHEELS, of any diameter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unattainable by any other means.
MACHINERY or FOREIGN MINES carefully prepared.
SECONDHAND MINING MACHINERY, in good conditon, always on sale. at moderate prices.

Now ready.
Volume Forty-six, neatly bound in cloth and lettered, price £1 12s. 6d.
THE MINING JOURNAL FOR 1876.—To be had from our Office, 26, Fleet-street, London, or through any Newsagent or Bookseller.

THE "CRANSTON" ROCK DRILL
SUITABLE FOR
QUARRYING, SINKING SHAFTS, SUBMARINE BLASTING, TUNNELLING, DRIVING ADITS,
Is the MOST SIMPLE and ECONOMICAL DRILL now in use.
BOILERS; AIR COMPRESSORS, worked by Hydraulic or Steam-power; STEEL for MINING DRILLS; PUMPING, and all other MINING MACHINERY supplied.
For Prices, Estimates, and other Particulars, apply to—
J. G. CRANSTON, 22, GREY STREET,
NEWCASTLE-ON-TYNE.
Mr. TAIT, Manager, East Hetton Quarry Company's Works, Coxhoe, Durham, writing on May 12, 1876, says—"I have pleasure in testifying to the value of your Rock Drills. The two you supplied us with about six months ago are giving us entire satisfaction. The cost of drilling by machine is less THAN ONE-FOURTH THAT OF DRILLING BY HAND. By the use of the Drills we have been able very greatly to increase the out-put of stone without increasing the number of men employed."

Teams Patent Hemp and Wire Rope Works,
GATESHEAD-ON-TYNE.
DIXON. CORBITT. AND SPENCER.
MANUFACTURERS of every description of ROUND and FLAT ROPES of any length for COLLIERY, RAILWAY, AGRICULTURAL, SHIPPING, and other purposes, and guaranteed of the highest standard of strength.
Best Selected Charcoal Iron, Best Crucible Cast Steel, and extra strong Improved Steel Round and Flat Wire Ropes; Compound-laid non-rotating Flexible Ropes, in Iron or Steel for small gear and sinking purposes; Best Selected Charcoal Iron Guide Ropes; Galvanised and Plain Ropes for capstans, crabs, suspension bridges, canal towing, &c.; Patent Steel Plough Ropes; Galvanised Signal and Fencing Strands; Copper Rope Lightning Conductors; Steel, Iron, and Copper Sash Cords; Picture Cords; Russian, Italian, and Manilla Hemp Round and Flat Ropes; White and Tarred Hemp and Flax Spun Yarns; Round and Flat Rope Pulleys and Patent Springs for same; Galvanised Wire Rope for Ships' Standing Rigging; Russian, Italian, Manilla, and Coir Cordage; Towlines, Warps, Service and other Lines for Shipping Purposes; Ships' Rigging fitted by experienced workmen.
D., C., and S. beg to call special attention to the advantages to be derived by adopting their EXTRA STRONG IMPROVED STEEL ROPES, for lifting heavy loads in deep mines, also in hauling from long distances; a considerable reduction is effected in weight, friction materially reduced, and an extra amount of work got out of the rope—a rope 8 lbs. per fathom being equal in strength to an iron rope 20 lbs. per fathom, or an ordinary steel rope 12 lbs. per fathom

MANCHESTER WIRE WORK.
NEAR VICTORIA STATION, MANCHESTER.
(ESTABLISHED 1790).

JOHN STANIAR AND CO.,
Manufacturers by STEAM POWER of all kinds of Wire Web, EXTRA TREBLE STRONG for
LEAD AND COPPER MINES.
Jigger Bottoms and Cylinder Covers woven ANY WIDTH, in Iron, Steel, Brass, or Copper.
EXTRA STRONG PERFORATED ZINC AND COPPER RIDDLES AND SIEVES.


Shipping Orders Executed with the Greatest Dispatch.

PARIS INTERNATIONAL EXHIBITION, 1867.

VIENNA INTERNATIONAL EXHIBITION, 1873.

LONDON INTERNATIONAL EXHIBITION, 1874.

CORNWALL POLYTECHNIC SOCIETY, 1867 and 1873.

TANGYE BROTHERS AND HOLMAN,

10, LAURENCE POUNTNEY LANE, LONDON, E.C.,

AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

The "SPECIAL" DIRECT-ACTING STEAM PUMP,

WITH

Holman's Patent Self-acting Exhaust Steam Condensers.

UPWARDS OF 12,000 "SPECIAL" STEAM PUMPS ARE IN USE.

After eight years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once the simplest and most certain in action. There is absolutely no extraneous gear, and the steam cylinder is *no longer than the pump*. The valves are of easy access, and are suited for pumping fluids and semi-fluids of almost any consistency.

Holman's Condenser

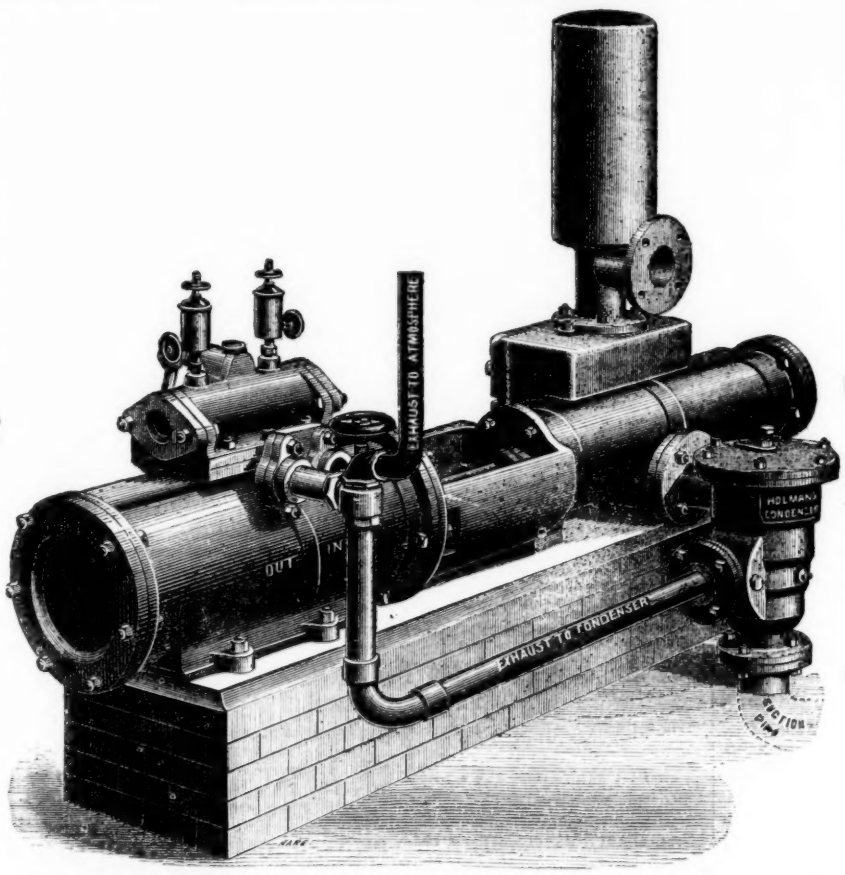
TURNS WASTE STEAM INTO GREAT POWER.

SAVES HALF ITS COST IN PIPES AND CONNECTIONS.

PREVENTS ALL ESCAPE OF STEAM IN MINES OR ELSEWHERE.

REQUIRES NO EXTRA SPACE.

SAVES TWENTY TO FIFTY PER CENT. OF FUEL.



WILLIAM ELLIOT, Esq., *of the Weardale Iron and Coal Company, writes under date Sept. 17th, 1875, as follows:*—"We have now THIRTY-FIVE of your SPECIAL STEAM PUMPS in operation at the various collieries under my charge—some of them employed pumping water out of our pits to the depth of 50 fms.—others employed in the pits, and a good many feeding Boilers. I have no hesitation in saying that we have found them the Cheapest and Best Pumps of the kind we have tried. I can with confidence recommend them to intending purchasers."

Messrs. BURT, BOULTON, and HAYWOOD, *Chemical Manufacturers, of London*, have FORTY of the "SPECIAL" STEAM PUMPS in use at their works.

HOLMAN'S CONDENSERS

Are made to suit any size and kind of Steam Pump. They form a part of the suction pipe of the Pump, and while they effectually condense the exhaust steam they produce an average vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Engine, and effecting a saving in fuel of from 20 to 50 per cent.

In Mining operations these Condensers will be of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the feed water, but is returned with it into the boiler.

GREAT REDUCTION IN PRICES.

The following sizes are suitable for low and medium lifts:—

Diameter of Steam Cylinder ...In.	3	4	4	4	5	5	5	6	6	6	6	7	7	7	7	7	8	8	8	8	8	9	9	9	9	9	10	10
Diameter of Water Cylinder ...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	7	4	5	6	7	8	5	6	7	8	9	5	6
Length of Stroke .....In.	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	12	12
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,500	5070	7330
Price of Special Pump ...£	**16**	**18**	**20**	**25**	**22 10**	**27 10**	**32 10**	**25**	**30**	**35**	**40**	**30**	**35**	**40**	**45**	**50**	**40**	**45**	**50**	**55**	**65**	**50**	**55**	**60**	**70**	**85**	**55**	**60**
Extra, if fitted with Holman's Condenser and Blow-through Valve	£7	£7	£9	£11	£8 10	£11 10s	£12 10s	£9	£12	£15	£15	£10	£13	£15	£16	£22	£13	£16	£16	£22	£22	£16	£16	£23	£24	£35	£17	£17

CONTINUED.

Diameter of Steam Cylinder..In.	10	10	10	10	12	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	18	18	18	18			
Diameter of Water Cylinder..In	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14			
Length of Stroke .....In	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24			
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000			
Price of Special Pump..£	**65**	**75**	**90**	**100**	**75**	**80**	**85**	**110**	**120**	**140**	**110**	**120**	**130**	**140**	**160**	**180**	**140**	**150**	**160**	**180**	**200**	**180**	**190**	**210**	**230**			
Extra, if fitted with Holman's Condenser and Blow-through Valve	£23	£24	£35	£35	£20	£27	£27	£38	£38	£50	£28	£28	£40	£40	£55	£55	£28	£40	£40	£55	£55	£45	£45	£56	£60			

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the "Special" Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of suction and delivery valves of a "Special" Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

The "Special" Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36 48 and 72-inch Strokes.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:—

NORLEY COLLIERY, WIGAN.

Messrs. TANGYE BROTHERS AND HOLMAN.

GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economical sense, a most valuable feature in the drainage of underground workings. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the "Special" Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10¾ lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge indicating a steam pressure of 36 lbs. per square inch, 80 yards from the Pump, and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. The working economy thus shown is really so great that the cost of the Condenser must be saved in a very short time. (Signed) J. THOMPSON.

NORTH OF ENGLAND HOUSE ... ... TANGYE BROTHERS AND RAKE, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE... ... ... TANGYE BROTHERS AND STEEL, Tredegar Place, NEWPORT, Mon.; and Oxford Buildings, SWANSEA.

BLAKE'S PATENT STEAM PUMP.

MORE THAN 10,000 IN USE.

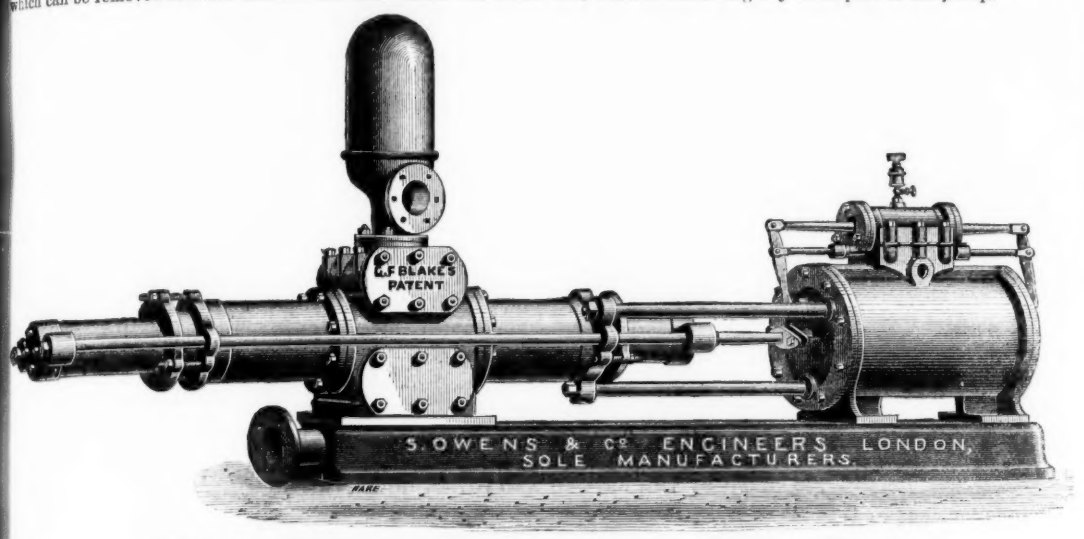
SOLE MAKERS FOR GREAT BRITAIN,

S. OWENS & CO.,

Hydraulic and General Engineers, Whitefriars-street, London;

And at 195, Buchanan-street, Glasgow (W. HUME, AGENT).

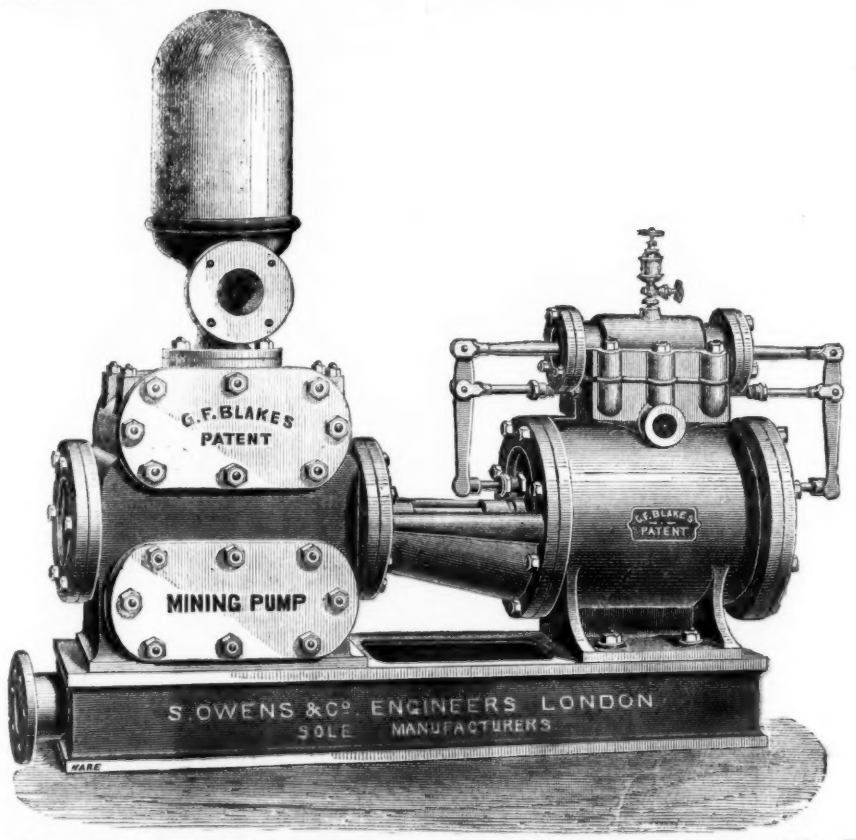
These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is desired to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily got at by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



Blake's Improved Double-plunger Steam Pump.

S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, Whitefriars-street, Fleet-street, London.



Blake's Improved Mining Pump, with Patent Removeable Lining to Pump Cylinder,

Any combination of these Pumps may be had to suit circumstances. The following are some of the SIZES SUITABLE FOR MINING PURPOSES:—

Dia. of steam cylinders.. In.	12	12	12	12	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	24	24
Dia. of water cylinders.. In.	3	4	5	6	4	5	6	4	5	6	8	4	5	6	8	5	7	8	9	6	8
Length of stroke ... ... In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	36	42
No. of strokes per minute..	30	30	30	30	25	25	25	22	22	22	22	22	22	22	22	20	20	17	17	17	15
Quantity in gallons per hour, approxmately ...	1440	2610	4200	5940	2940	4620	6600	2646	4158	5940	10620	2646	5160	7500	13260	4586	9000	12360	15660	6720	12000

PRICES FOR THE ABOVE, OR ANY SPECIAL SIZE, AND ILLUSTRATED CATALOGUES FURNISHED ON APPLICATION

PATENT CONDENSERS

can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficiency

The Blake Pump will work under water, and as efficiently with compressed air as with steam.

BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

PATENT

"INGERSOLL ROCK DRILL,"

LE GROS AND CO.,

60, Queen Victoria Street, London, E.C.

5, PARK PLACE, NEW YORK, U.S.A.

We claim 40 per cent. greater effective drilling power, and offer to compete with any machine of its class.

See following extracts from the reports of Judges in awarding Medals:—

"2. Its simple construction ensures durability, &c.

"4.—The steam or air cushions at each end of cylinder effectually protect from injury.

"5. Its having an automatic feed, giving it a steady motion, &c.

"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working parts, &c.

"7. Its greater power is some FORTY PER CENT. in favour of the Ingersoll."

Medals awarded for several years in succession "For the reason that we adjudge it so important in its use and complete in its construction as to supplant every article previously used for accomplishing the same purpose."

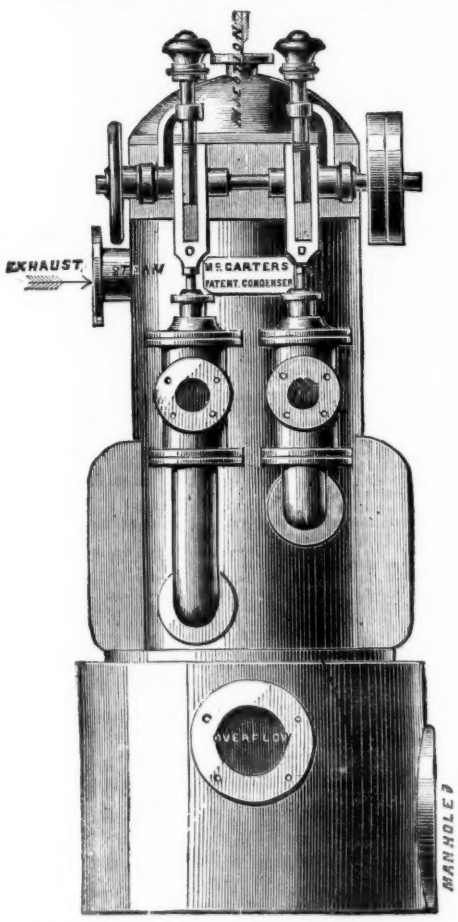
Estimates given for Air Compressors and all kinds of Mining Machinery. Send for Illustrated Catalogues. Price Lists, Testimonials, &c., as above.

LICENSED MAKERS.

KIRK, RAMSDEN, AND CO.

(LIMITED)

HUDDERSFIELD.



These Condensers can be placed inside or outside of the engine-house. They draw their own injection water, and require no foundation. Specially adapted to Pumping and Winding Engines, effecting a saving from 20 to 30 per cent. in coal, and increases the power of the Engine.

Engineers, Millwrights, Founders,

AND

FORGE PROPRIETORS.

Makers of Pumping, Winding, and Blowing Engines, Condensing and Non-condensing.

Horizontal and Beam Engines for all purposes.

IN THE SPRING Parr's Life Pills are used by Thousands.—They clear from the system all hurtful impurities, promote appetite, aid digestion, purify the blood, and keep the bowels regular. PERSONS SUFFERING from HEADACHE, Liver Complaints, Pains in the Shoulders and the Back, Gout, Rheumatism, and General Debility are particularly recommended to try

PARR'S LIFE PILLS

They have never been known to fail in affording immediate relief.

BLAKE'S NEW PATENT STONE BREAKER.

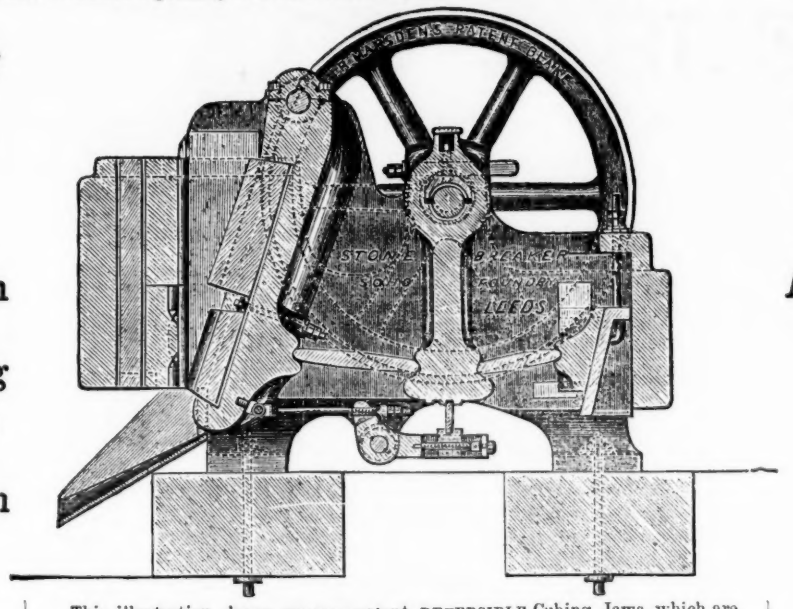
H. R. MARSDEN,

ORIGINAL PATENTEE, AND **ONLY** MAKER IN THE UNITED KINGDOM.—**2000** IN USE.

These Machines are in extensive use amongst the Tin, Copper, Lead, and other Mines, and are showing a clear saving of 4d. and 6d. per ton over the ordinary mode of hand spalling, besides a diminution of stamping power equal to 30 per cent., which is a considerable saving. They are already well known to the mining world, and can be seen in operation at some of the leading Cornish and other Mines. For breaking the elvan rock they have established a decided supremacy over other Machinery.

Exclusively adopted by Her Majesty's Government, and by most Continental Governments.

Machines for Hand and Steam Power, specially designed and largely used for Crushing Pyrites, Limestone, Cement, Coal, Rocks, Ganister, &c., at all the principal works in the Kingdom.



This illustration shows my new patent REVERSIBLE Cubing Jaws, which are made in upper and lower sections, and the backs planed, so that when the bottom part of the lower section becomes worn it can be turned upside down, and thus made equal to new. This process does not require the aid of skilled labour, the white metal being entirely dispensed with.

THESE JAWS WILL WEAR FOUR TIMES longer than any other, and they can be renewed at a fractional cost.

Used by all the Great Mining Companies in the World, and are shown by Testimonials to effect a Saving of FIFTY per cent. over every other system.

Awarded 62 Gold and Silver Medals:—

Paris, 1867.
Santiago, 1869.
Leeds, 1875.
Leicester, 1868.
Cardiff, 1872.
Bolton, 1872.
Ayr, 1873-4-5-6, &c.

EXTRACTS FROM TESTIMONIALS.

"They occupy an important position as labour-saving Machines."—*Architect.*

"The Machine is well designed, simple, but substantially made, and is capable of reducing any material to fine gravel, such as copper ore, and is certainly preferable to the stamps in use for that purpose."—*Mining Journal.*

"Your Machine will crush from 60 to 120 tons of hard limestone per day of 10 hours."

"No Machine is equal to yours, combining as it does very great power, simplicity of construction, and cheapness."

"Mr. Marsden's Stone Breakers are so thoroughly well known and appreciated that it is unnecessary for us to describe their construction or speak of their merits.—*Engineering.*

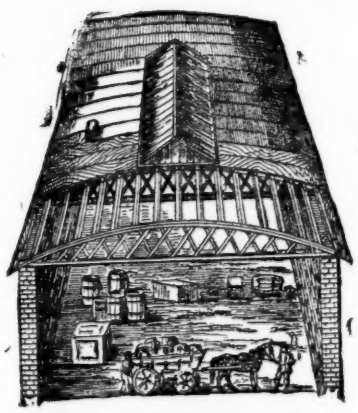
"By the use of your Machine we have reduced the cost of breaking and forming road material to one-half its previous cost."

"Our 15 by 7 Machine has broken 4 tons of hard whinstone in 20 minutes for fine road metal, free from dust."

CATALOGUES, TESTIMONIALS, &c. (in the French or German language, if required), on application to the sole maker of "Blake's" Stone Breaker:—

H. R. MARSDEN, SOHO FOUNDRY, LEEDS, ENGLAND.

M'TEAR AND CO.'S CIRCULAR FELT ROOFING,



FOR
GREAT ECONOMY
AND
CLEAR WIDE SPACE.

For particulars, estimates, and plans, address,—

M'TEAR & CO.,
ST. BENET CHAMBERS,
FENCHURCH STREET,
LONDON, E.C.;
4, PORTLAND STREET,
MANCHESTER;
OR
CORPORATION STREET,
BELFAST.

The above drawing shows the construction of this cheap and handsome roof, now much used for covering factories, stores, sheds farm buildings, &c., the principal of which are double bow and string girders of best pine timber, sheeted with ½ in. boards, supported on the girders by purlins running longitudinally, the whole being covered with patent waterproof roofing felt. These roofs so combine lightness with strength that they can be constructed up to 100 ft. span without centre supports, thus not only affording a clear wide space, but effecting a great saving both in the cost of roof and uprights.

They can be made with or without top-lights, ventilators, &c. Felt roofs of any description executed in accordance with plans. Prices for plain roofs from 30s. to 0s. per square, according to span, size, and situation.

Manufacturers of PATENT FELTED SHEATHING, for covering ships' bottoms under copper or zinc.

DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby saving 25 per cent. in fuel by preventing the radiation of heat.

PATENT ASPHALTE ROOFING FELT, price 1d. per square foot.

Wholesale buyers and exporters allowed liberal discounts.

PATENT ROOFING VARNISH, in boxes from 3 gallons to any quantity required 8d. per gallon.

HEPBURN'S
PUMP LEATHER
WATERPROOF

By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,
TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE MANUFACTURERS,
LONG LANE, SOUTHWARK, LONDON
Prize Medals, 1851, 1855, 1862, for
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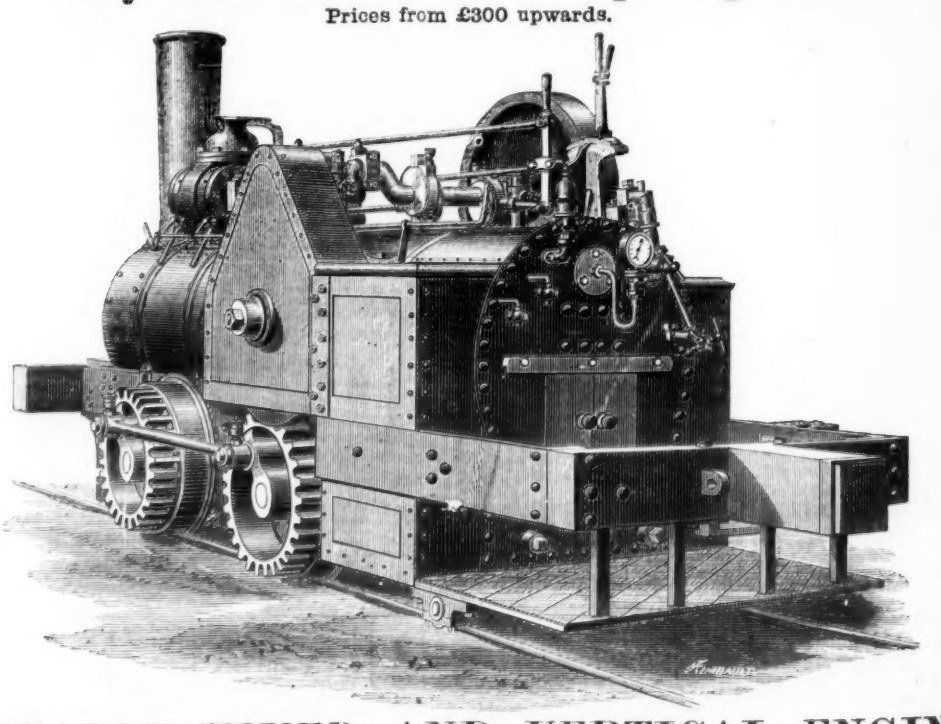

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